

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
PUBLIC MEETING AND COMMENTS ON THE  
PREFERRED CITYWIDE REMEDY  
NEW DORP HIGH SCHOOL  
STATEN ISLAND, NEW YORK

ADDRESSING POLYCHLORINATED BIPHENYLS (PCBs)  
PRESENT IN THE CITY'S SCHOOLS

June 9, 2014

Reported by:  
DANIELLE GRANT  
Job no: 11928

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

T R A N S C R I P T of the proceedings  
in the above-entitled matter being taken by  
DANIELLE GRANT, a Notary Public of the State  
of New York, held at the NEW DORP HIGH SCHOOL,  
New Dorp Lance, Staten Island, New York  
10306.

1 PUBLIC MEETING EPA PRESENTER:

3 JAMES S. HAKLAR, Ph.D,

4 PCB COORDINATOR

5 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

6 REGION 2

7 2890 Woodbridge Avenue, Building 10

8 Edison, New Jersey 08837

11 ALSO PRESENT:

12 DAVID KLUESNER

13 ED GERDIS

14 GARY HUNT, TRC CORP.

15 SUSAN SCHULZ, EPA

16 MARK MADADALONI, EPA

17 PAT EVANGELISTA, EPA

18 ROSS J. HOLDEN, SCA

1 EPA Public Meeting 06.09.14

2 (THE PROCEEDING OPENED AT 6:35 P.M.

3 AS FOLLOWS: )

4 MR. KLUESNER: You can provide us  
5 your comments by mail or e-mail. All  
6 right.

7 I would just like to acknowledge  
8 that we have Laura with comptroller  
9 Stringer's office, and also Dan with  
10 councilman Matthews office, so thank  
11 you for coming out. We have a  
12 representative of the UFT is here. I  
13 believe can say plural, we have parents  
14 plural, I know we have one, thank you  
15 for coming, and we may have more that  
16 just arrived.

17 So everybody, you know, my job is  
18 to sort of make you feel comfortable.  
19 If the noise from the fan is too much  
20 I'm going to adjust that. It sound a  
21 little better. It was echoey at first.

22 I want to make sure you can hear.

23 Dan, yes?

24 AUDIENCE SPEAKER: Kill the fans.

25 MR. KLUESNER: Yes, I'll adjust that

1 EPA Public Meeting 06.09.14

2 in a second, and that's one of my jobs is  
3 to make sure you can hear, to make sure  
4 that we will be here for as long as we  
5 need to take your comment and answer as  
6 many questions as possible. So that's  
7 our mission tonight.

8 To the extent we cannot answer the  
9 questions tonight, we will certainly  
10 get back to you and provide those  
11 answers in a responsiveness summary.

12 So we have a brief presentation by  
13 EPA and the City, and we'll go ahead  
14 get started and then I will ask you to  
15 hold your questions and comments until  
16 after the presentation, that will be  
17 much appreciated. If you can turn your  
18 cell phones on silent, that would also  
19 be appreciated.

20 All right. So thank you. With  
21 that I'll turn it over to Jim.

22 MR. HAKLAR: Thank you, David.  
23 Let's start with the presentation, and  
24 why are we here tonight? The main reason  
25 why we're here tonight is to take or

1 EPA Public Meeting 06.09.14

2 receive your comments on the City's plan  
3 to address the PCBs in the school system.  
4 And it's really, aside from making --  
5 providing your comments tonight for the  
6 stenographer, you can also send comments  
7 by regular mail to me at this address, or  
8 you can e-mail your comments to this  
9 e-mail address right here. And these  
10 addresses are provided on the flyers I  
11 think that are in the back of the  
12 auditorium.

13 So let's start with a little bit  
14 of a background PCBs. PCBs are manmade  
15 chemicals, they're not naturally found.  
16 They were manufactured from the 1930s  
17 through the late '70s, and they were  
18 considered the magic chemical. They  
19 had a lot of good valuable properties  
20 for electrical properties and heat  
21 transfer properties. And they were  
22 widely used in industry and especially  
23 in the construction of buildings.

24 A lot of buildings that were built  
25 or renovated from the 1950s through the

1 EPA Public Meeting 06.09.14

2 1970s you could have PCBs in the caulk,  
3 in the floor groove, things like that.

4 On the not-so-good side, PCBs are  
5 hazardous and potentially cancer  
6 causing, and because of this, Congress  
7 and EPA banned the manufacture of PCBs  
8 in the late 1970s.

9 Now, how do we know that PCBs are  
10 in New York City schools? Several  
11 years ago there were several  
12 individuals who would walk up to  
13 schools and collect a sample of the  
14 building caulk. They would have that  
15 sample analyzed for PCBs, and when they  
16 did that they provided the results to  
17 EPA, and they also provided the results  
18 to New York Daily News. Now, when we  
19 saw the results, some of the caulk  
20 samples were very high. We knew that  
21 there was an issue here and that it was  
22 an issue that had to be addressed.

23 So we entered into discussions  
24 with New York City and the result of  
25 those discussions was a formal

1 EPA Public Meeting 06.09.14

2 agreement which we call a consent  
3 agreement. And that formal agreement  
4 addresses the PCBs.

5 Now, the agreement with New York  
6 City was signed by EPA and New York  
7 City about four-and-a-half years ago,  
8 and it required the City to perform a  
9 study, it's a study that we call the  
10 pilot study. And it looked at five  
11 older schools throughout the city, and  
12 these older schools were known to have  
13 PCBs in their building materials. And  
14 based on what was found during the  
15 pilot study, New York City prepared a  
16 report on its findings, and that report  
17 also has a proposed approach which is  
18 called a preferred citywide remedy.  
19 It's a proposed approach to deal with  
20 the PCBs.

21 And at this point I am going to  
22 hand the microphone over to Ed Gerdis  
23 of TRC. TRC is a consultant for New  
24 York City and Ed will discuss the  
25 details of the pilot study.



1 EPA Public Meeting 06.09.14

2 MR. GERDIS: Thank you, Jim. My  
3 name is Ed Gerdis, I work for the New  
4 York City School Construction Authority  
5 as a consultant. I work for a company  
6 called TRC Environmental, and we're going  
7 to talk a little bit about the pilot  
8 study that we performed. We're going to  
9 follow this outline of this presentation,  
10 introduction, background, talk a little  
11 bit about the results, the preferred  
12 citywide remedy and then some of the  
13 long-term monitoring that we're going to  
14 be performing.

15 Jim mentioned about PCBs and their  
16 production. They were used widespread,  
17 and not only in New York City,  
18 throughout the United States. A  
19 billion pounds were used between the  
20 '20s and the '70s, 1.4 billion, so a  
21 lot of PCBs were generated and used in  
22 commerce, commercial products.  
23 Beginning in the '50s, it was used in  
24 caulks for its elastic properties. It  
25 was useful to be used in caulk around,

1 EPA Public Meeting 06.09.14

2 you know, that you apply around masonry  
3 joints and windows and doors.

4 It was banned in 1978, and in  
5 2009, so relatively recently the EPA  
6 came up with guidance relative to this  
7 issue, so it's what we consider a  
8 relatively emerging issue in the  
9 environmental industry.

10 There was an agreement called a  
11 CAFO, consent agreement final order.  
12 And part of that agreement included an  
13 evaluation or what was called a pilot  
14 study in five schools. Five schools  
15 were selected to evaluate with the  
16 ultimate goal of coming up with a  
17 citywide approach. and this is part of  
18 that process. We've done that work  
19 within five schools, and we've talked a  
20 little bit about that, and now we're  
21 using that information to develop a  
22 preferred citywide remedy.

23 I want to note that it's the first  
24 and its only kind in the nation, so  
25 although a lot of school districts

1 EPA Public Meeting 06.09.14

2 within the nation face the same problem  
3 and the same issue, New York because of  
4 its size, I guess, was selected as sort  
5 of the leader in this issue.

6 The five different remedial  
7 alternatives that were studied in the  
8 five schools included encapsulation of  
9 the caulk where you put an encapsulant  
10 on the caulk. Removal and replacement  
11 of the PCB caulk. Patch and repair of  
12 the caulk. And then window removal,  
13 and these are typical applications that  
14 we're looking to use to address PCB  
15 caulk issue.

16 This started in 2010 and during  
17 the summer of 2010 when this was  
18 ongoing we identified PCB ballasts as  
19 also a potential problem. And it turns  
20 out, because of that significance of  
21 that issue, we added that to the piolet  
22 study, so we originally were looking at  
23 caulk alone, and then in 2011 we added  
24 evaluating removing and replacement of  
25 PCB ballasts, the light fixture

1 EPA Public Meeting 06.09.14

2 ballasts.

3 These are the schools, so there  
4 was one in each borough that was  
5 evaluated and the various remedial  
6 alternatives I discussed were evaluated  
7 in each of those school, so 178 patch  
8 and repair, 199M remove and replace,  
9 183Q was window replacement, 309K was  
10 encapsulation. And what else? 3R  
11 light fixture removal.

12 Essentially, after we did this  
13 work, we ultimately removed all the  
14 light fixtures in each of these schools  
15 as well.

16 The study followed an approach  
17 where we did some remedial activity, we  
18 wanted to study the remedial activity,  
19 so if it was encapsulation or patch and  
20 repair, or removal, we took samples  
21 before we did that and then we took  
22 samples after we did that to see if  
23 there was any impact.

24 We took samples in the air, of the  
25 dust, so we took wipe samples and then

1 EPA Public Meeting 06.09.14

2 when outside the school as well we took  
3 soil samples. And we sampled pre and  
4 post remedial samples. We collected  
5 pre and post remediation samples. And  
6 they were collected in the same  
7 locations, you know pre and post.

8 And what we found is, in all the  
9 wipe samples the pre and the post were  
10 all below, with the exception of one  
11 sample which was an anomaly because we  
12 went back and retested it, we did not  
13 find that result, when we took all the  
14 pre and the post samples, they were al  
15 below the EPA guidance. EPA has  
16 guidance and regulatory limits for  
17 surface concentrations as well as  
18 guidance for air concentrations.

19 So what we found was when we did  
20 the pre and the post, all of them were  
21 below the guidance except that one  
22 which essentially we felt that it was a  
23 good indication that the routine  
24 housecleaning that is being conducted  
25 is effectively managing the issue if

1 EPA Public Meeting 06.09.14

2 there is in fact an issue.

3 We also collected air samples, pre  
4 and post. Over 1100 air samples were  
5 collected. And what we essentially  
6 found was when we did, we took the  
7 sample, we did the remedial activity,  
8 we saw the levels essentially generally  
9 come down, but then when we removed the  
10 light fixtures and the light ballasts  
11 we saw a more dramatic impact, so that  
12 was where this was leading, the  
13 information, the data was leading us to  
14 was we were focused initially on the  
15 caulk, but then when we saw the  
16 dramatic impact on the light fixtures  
17 we said we should really focus on these  
18 light fixtures.

19 And so some of the findings that  
20 we found that it is a complex issue, so  
21 there's a number of sources of PCBs,  
22 there's the issue of releasing and  
23 become secondary sources and  
24 re-releasing.

25 There was a document that the EPA

1 EPA Public Meeting 06.09.14

2 published in 2012, at the end of 2012,  
3 that highlights that issue. And then  
4 other issue is -- one of the key  
5 findings of this that we should really  
6 address the PCB light fixtures before  
7 we address anything else because it's  
8 got the high concentrations, it's on an  
9 electrical unit. They've out lived  
10 their usefulness, and not only help the  
11 environment, they would also, you know,  
12 we get energy efficiency impacts as  
13 well. So they should be addressed  
14 first.

15 PCB caulk needs to be managed on  
16 an ongoing basis, and we'll talk about  
17 that. And then ultimately what we  
18 found is more research is needed. This  
19 is a complex issue, it's an emerging  
20 issue, there's not a lot of information  
21 out there. A lot of things have been  
22 gained and learned as part of this  
23 program, but more study needs to be  
24 done.

25 One of the big findings of this

1 EPA Public Meeting 06.09.14

2 pilot study was, and one of the big  
3 results was the removal and  
4 replacements of all the PCB light  
5 fixtures throughout the school district.  
6 So all of the light fixtures are going  
7 to be removed. There is a schedule for  
8 it, and they're all going to be removed  
9 by December 31, 2016.

10 So it's a pretty aggressive  
11 schedule. There's hundreds of  
12 buildings that have PCB light fixtures.  
13 And so I guess 238 at this point, it's  
14 a moving target, there's constantly  
15 work going on so every day there's more  
16 being done and completed, but currently  
17 there's 238 that have been completed  
18 and 173 that are in the process.

19 So ultimately we come up with the  
20 preferred citywide remedy, and that's  
21 sort of the end game, but again we  
22 still, I think, there is -- so where we  
23 are right now is the light fixture  
24 removal program is ongoing. There is a  
25 protocol that was developed to



1 EPA Public Meeting 06.09.14

2 inspect -- until that time that they're  
3 all removed there's a protocol that was  
4 developed to an ongoing basis to  
5 inspect and respond to any kind of  
6 ballast issues that's being  
7 implemented. There's best management  
8 practices that were developed and  
9 approved for managing the caulk in  
10 place so an inspection of the caulk and  
11 if there are any kind issues, how to  
12 address them, the protocols that should  
13 be followed to address those issues.

14 When there's a capital improvement  
15 project, like a window replacement job  
16 or a door replacement job or anything  
17 that might impact caulk, there is an  
18 investigation that's conducted to  
19 determine if that caulk that is  
20 impacted is PCB containing, is it PCB  
21 regulated material, and if it is, then  
22 proper precautions are implemented to  
23 remove it appropriately under  
24 containment conditions, so it's a  
25 controlled removal.

1 EPA Public Meeting 06.09.14

2 In addition, as part of a capital  
3 improvement project, if there are  
4 window jobs or anything that might be  
5 impacting the exterior or the soil when  
6 the job is complete, the soil around  
7 the exterior of the building is tested,  
8 and if it is impacted it is removed and  
9 addressed through an EPA protocol.

10 Long-term monitoring is something  
11 that's ongoing, and so on an ongoing basis  
12 we're going to be doing air sampling  
13 twice a year at a minimum in these  
14 pilot schools to monitor the progress.

15 Bulk sampling is going to be  
16 conducted as part of the long-term  
17 monitoring plan and also wipe sampling.  
18 But as, if you read the document, there  
19 are additional studies that we are  
20 working currently with the EPA to  
21 develop to implement on an ongoing  
22 basis to further study this issue.

23 With that, I'm going to turn it  
24 back over to the Jim.

25 MR. HAKLAR: Okay. Thank you, Ed.

1 EPA Public Meeting 06.09.14

2 Okay. So now the pilot study has  
3 been completed. What were the next  
4 steps? In accordance with our  
5 agreement with New York City, EPA had  
6 to conduct what's called a peer review.  
7 And a peer review -- you have to think  
8 of a peer review as if you were, let's  
9 say, writing a letter to somebody and  
10 you gave it to an independent party to  
11 check to make sure there were no  
12 mistakes or errors. So we had  
13 technical experts review New York  
14 City's work.

15 We also, in accordance with our  
16 agreement, are holding this public  
17 meeting and we're going to be having  
18 one final later on this week in  
19 Brooklyn.

20 So let's talk a little bit about  
21 the peer review. Peer review was  
22 independent. EPA had no direct contact  
23 with the peer reviewers. We used a  
24 consultant who managed the peer review,  
25 but we -- and any questions or

1 EPA Public Meeting 06.09.14

2 information was passed through the  
3 consultant to the peer reviewers.  
4 There were a total of three peer  
5 reviewers. Two of them were from  
6 private industry or the environmental  
7 field. One was associated with a major  
8 university in the northeast.

9 And EPA provided the -- we  
10 provided our consultant with a set of  
11 questions for the peer reviewers to  
12 answer. And before we provided our  
13 consultant with those answers, we  
14 provided them to New York City for  
15 their input.

16 And once the peer reviewers had  
17 completed their work, our consultant  
18 assembled the responses into what's  
19 called a peer review report. EPA  
20 reviewed that report, and we prepared  
21 our own document on our perspectives on  
22 the peer review. And both documents  
23 can be found at the web site that's  
24 provided at the bottom of the slide  
25 right over here. And that web site,

1 EPA Public Meeting 06.09.14

2 again, it should be on the flyers.

3 So what were the major findings of  
4 the peer review? Well, if we start and  
5 we look in general terms of the City's  
6 summary report the, peer reviewers  
7 found that the report was comprehensive  
8 and that appropriate methods were used  
9 during the actual field work or the  
10 investigation phase of the pilot study.

11 We had tasked the peer reviewers  
12 to take a look at what it is called the  
13 City's reoccupancy protocols in the  
14 event of a light ballast failure. Now,  
15 a light ballast is an electrical  
16 component that's inside a fluorescent  
17 light fixture. The older light  
18 ballasts, the ones that are 40, 50  
19 years old, could have these ballast  
20 components that could have PCBs in  
21 them, and if those ballasts smoke or if  
22 they leak you could you possibly have  
23 PCBs released into the area where the  
24 ballasts are leaking.

25 The city has an established

1 EPA Public Meeting 06.09.14

2 protocol to respond to those situations  
3 and that protocol generally consists of  
4 evacuating the area, whether it be a  
5 classroom or hallway, whatever. Then  
6 the City provides proper notifications  
7 to EPA and to other parties. They  
8 also, they ventilate and they clean the  
9 area, and then they perform clearance  
10 testing.

11 Now, the clearance testing that  
12 the City performs is call wipe  
13 sampling, where you would take a gauze  
14 and wipe it along the surface of a desk  
15 or a table or the floor and to see if  
16 that gauze would pick up PCBs, and you  
17 would have that gauze analyzed at the  
18 laboratory. And we tasked the peer  
19 reviewers to look at that sampling, and  
20 some of the peer reviewers believe that  
21 wipe sampling alone for clearance is  
22 not adequate.

23 We also had the peer reviewers  
24 look or tasked them to suggest other  
25 options for addressing PCB caulk. You

EPA Public Meeting 06.09.14

heard Ed Gerdis talk about the alternatives or the methods that were evaluated during the pilot study. Some of the peer reviewers recommended physical barriers such as plastic tape or board or aluminum strips to prevent exposure to the PCBs, or even treating the caulk, chemically treating the caulk to reduce the amount of PCBs that's present in the caulk.

And one thing you have to realize, PCBs can move around. If you have caulk and it's over masonry like brick or concrete, the PCBs could move from the caulk into the concrete. PCBs also move from the caulk into the indoor air. And what EPA's office of research and development has found is that that is the primary way that people inside a building can get exposed to PCBs. It's not touching a little thin bead of caulk around a window, but it's in actually inhaling or breathing in PCBs that have gotten into the air.

1 EPA Public Meeting 06.09.14

2 We also tasked the peer reviewers  
3 to look at prioritizing schools. How  
4 would you go about prioritizing schools  
5 to address this situation? There are  
6 potentially hundreds of schools in the  
7 New York City school system that could  
8 have PCBs in the building materials.  
9 And I believe in the City's report,  
10 there was a recommendation to address  
11 it as, in the course of routine or  
12 normal construction.

13 Some of the peer reviewers believe  
14 that proactively addressing the PCBs  
15 would reduce the risks of exposure, and  
16 all three reviewers believed that  
17 prioritizing based on air sampling  
18 would be an effective means of dealing  
19 with the situation.

20 Let's talk a little bit about  
21 ventilation, how air moves in school  
22 buildings. All three peer reviewers  
23 believed that ventilation should be  
24 made the best it possibly could be, not  
25 just for reducing concentrations of



1 EPA Public Meeting 06.09.14

2 PCBs in the indoor air, but also for  
3 dealing with other situations, like  
4 conditions of let's say mold or similar  
5 situations.

6 The one thing you have to realize  
7 is that a lot of the schools were built  
8 to have -- to have the windows open or  
9 to allow the windows open to let fresh  
10 air in. And with the newer energy  
11 efficient windows, sometimes when  
12 they're replaced they can't open and  
13 that can impact the overall ventilation  
14 in the school.

15 Let's look at housekeeping in the  
16 schools, and we have a special term for  
17 the housekeeping called best management  
18 practices. And at the start of the  
19 presentation I mentioned that PCBs were  
20 used in caulk, building caulk. The  
21 reason why they were used in building  
22 caulk was to keep the caulk flexible.  
23 And if you were to take a look at caulk  
24 that was along the side of a building  
25 or around a window that was installed

EPA Public Meeting 06.09.14

40 years ago and it had PCBs in it, it may look like it's relatively new or that it was installed within the last year or the last month. And what we asked the peer reviewers to look at was do you focus on that intact caulk when you do a normal cleaning, housekeeping, do you focus the deteriorated caulk, because if you go look inside a building, sometimes you see caulk that's flaking or cracking, or do you look at both and the peer reviewers really weren't consistent in their recommendations. One recommended looking at intact caulk and another recommended looking at both, so, so, their responses were varied.

And then let's move outside the school, to the soil surrounding the school. We tasked the peer reviewers to look at, were proactively looking at the soil around the school, would that significantly reduce exposures. What we believe is that PCBs that are in the

1 EPA Public Meeting 06.09.14

2 soil around the building, around the  
3 school building probably got there from  
4 old construction practices, from little  
5 pieces of caulk or other building  
6 material PCBs getting into the soil and  
7 contaminating the soil. And the peer  
8 reviewers really didn't believe that  
9 proactively going out now and looking  
10 at the soil would significantly reduce  
11 the exposure to the PCBs. And the  
12 reason for that is, once again, the  
13 main way that someone can get exposed  
14 is by breathing in the PCBs from the  
15 air.

16 So what are your next steps?

17 Well, we have a public comment period  
18 that's open until June 30. And in  
19 accordance with our agreement with New  
20 York City, based on your comments and  
21 the findings of the peer review, EPA  
22 could revise the City's preferred  
23 citywide remedy. That's an option.

24 As Ed Gerdis mentioned, preferred  
25 citywide remedy also recommended

1 EPA Public Meeting 06.09.14

2 some -- acknowledged some data gaps,  
3 and after discussing those, this issue  
4 with New York City, EPA recommended or  
5 suggested to New York City that  
6 whatever research is done it include  
7 two areas.

8 The first one is to test different  
9 methods for collecting samples of the  
10 indoor air and for characterizing or  
11 trying to see -- trying to determine  
12 quickly and easily if caulk has PCBs.

13 The second area for research was  
14 really to refine or pin down how --  
15 what is the contribution to the indoor  
16 air of PCBs from building materials?  
17 We know that the light fixtures are a  
18 major source, but are they the only  
19 source or is there, or is does caulk  
20 contribute as much or nearly as much?  
21 We don't know yet, and that's an area  
22 for further research.

23 Now, I'm going to start wrapping  
24 up and just a couple of points to  
25 remember. There was a lot of work done

1 EPA Public Meeting 06.09.14

2 through the pilot study, a lot of good  
3 work, a lot of good scientifically  
4 valid work.

5 We do know now, we have a better  
6 understanding of where PCBs are in  
7 schools or where to look for them in  
8 schools. And as I mentioned just a  
9 moment ago, by removing the light  
10 fixtures there's a major source of PCBs  
11 that's being removed from the schools.  
12 It may not be the only source but it's  
13 a major source. And your comments  
14 really do matter to us.

15 And just to recap on this, it's  
16 like a split slide, the top of the  
17 slide has the City's preferred citywide  
18 remedy and on the bottom we have where  
19 you would send comments, and actually  
20 I've looked today and I started getting  
21 comments, so that's a good thing.

22 So at this point I'm going to  
23 briefly hand the microphone back to  
24 David.

25 MR. KLUESNER: Thank you, Jim.

1 EPA Public Meeting 06.09.14

2 Don't go anywhere.

3 Okay. How is everybody doing?

4 Can you hear everything?

5 So as I mentioned at the outset,  
6 we're here to take your comments. How  
7 is everybody doing over there, okay?

8 Okay. So at this point I would  
9 like to open it up for any comments by  
10 elected officials or any of their  
11 representatives. So Councilman Landry,  
12 will you --

13 MR. LANTRY: I'm here on behalf of  
14 Councilman minority leader Ignizio. My  
15 name is Brendan Lantry.

16 As many of you know, minority  
17 leader Ignizio has been a leader in the  
18 movement to remove hazardous toxic  
19 PCB-ridden lights and ballasts from New  
20 York City schools. In fact, as a  
21 result of his activism in this areas as  
22 well as that of Christina Georgio (ph)  
23 and the folks in the NYLPI meeting with  
24 the Department of Education and the  
25 former administration, minority leader

EPA Public Meeting 06.09.14

Ignizio successfully lobbied the City to commit to removing and ballasts and commit to significantly lowering its time frame for removal of the ballast. Minority leader Ignizio remains concerned about the PCB ingestion in our schools derived from caulking materials. Indeed we need accurate scientific procedures to be utilized in order to determine whether the concentrations and the caulking are a danger to those in the classroom.

The best way to conduct such a survey is a full diagnostic testing, a full pilot, monitoring real conditions that our children will be placed in, closed doors, open doors, open windows, closed windows, with air ventilation both on and on off. This is the only way to insure the health and safety of our children and teachers.

Minority leader Ignizio urges the EPA to not rely exclusively on the DOE report, which I understand it's not,

1 EPA Public Meeting 06.09.14

2 and to keep an open mind from the peer  
3 reviews as well as the parents and  
4 scientists that appear before you in  
5 your meetings in the five boroughs.

6 Of course we all, the EPA, DOE,  
7 NYLPI, those in the council, all seek a  
8 safe educational environment for our  
9 teachers and students. We all should  
10 strive to be sure that our kids are  
11 safe and insure that by any objective  
12 measure we have protected the health of  
13 children and staff in our buildings.

14 Thank you for your time.

15 MR. KLUESNER: Thank you.

16 We have representatives from  
17 Council Member Rose, Councilman  
18 Matteo's office, Comptroller Stringer's  
19 office.

20 Any statements or any comments at  
21 this point?

22 Well, it open it up for comments.  
23 If I can get a show of hand for how  
24 many folks have a comment or a  
25 question.



1 EPA Public Meeting 06.09.14

2 Okay. If you wouldn't mind, I  
3 apologize, you might have to walk up  
4 her.

5 AUDIENCE SPEAKER: That's okay, I'm  
6 a teacher, I have a loud speaking voice.

7 So I don't know much about PCBs.  
8 I'm a teacher, I work in a building for  
9 more than ten years. I have children  
10 in the public school system, I have a  
11 grandson who is about to enter the  
12 public school system.

13 When I hear the study took five  
14 schools out of approximately 1,700  
15 schools, it really makes me wonder how  
16 comprehensive is the study? How do you  
17 rely on the results from five out of,  
18 you know, 1,700 schools? So that to me  
19 says that, you know, what will you find  
20 if you test more schools.

21 I really want to know, are they  
22 expanding this pilot study, had they  
23 already expanded it, or are they really  
24 basing what happens with our children  
25 and our teachers on the study of only

1 EPA Public Meeting 06.09.14

2 five schools?

3 MR. HAKLAR: The pilot schools were  
4 selected to be representative of typical  
5 schools across the city. At this point,  
6 the pilot study is, aside from the  
7 additional suggested research, the pilot  
8 study is for the most part done, and at  
9 the moment its testing is not being  
10 expanded.

11 Does the City want to comment on  
12 this?

13 AUDIENCE SPEAKER: Can I just add,  
14 just to follow-up to your comment. I  
15 worked in a school initially for the  
16 first maybe seven years that was built,  
17 if I'm not mistaken, I think 1925. I  
18 have a son who graduated from a school  
19 building that was brand new built in  
20 maybe 2008 or 2009. So there really it  
21 is no way -- and I mean, I'm sure that  
22 there are, you know, far in between from  
23 1925 to very currently built schools, so  
24 I don't see how taking one school from  
25 every borough can give you a realistic

1 EPA Public Meeting 06.09.14

2 picture or say this is the norm or this  
3 is the average, because just in one  
4 individual my experiences in public  
5 schools are vastly different in one  
6 borough.

7 MR. HAKLAR: And Again, I guess for  
8 more thorough explanation, I'm going to  
9 have to defer to the School Construction  
10 Authority.

11 MR. HOLDEN: My name is Ross Holden,  
12 I'm with the School Construction  
13 Authority. So I think early on in the  
14 presentation showed that the history of  
15 PCBs and when they were used  
16 predominantly in buildings, not just in  
17 schools, not just in the City, but  
18 everywhere, and it was in 1950 until  
19 1978.

20 So if the school was built during  
21 that time or any building was built  
22 during that time or had a massive large  
23 major renovation done during that time,  
24 that is a potential building that you  
25 would want to either include in the

1 EPA Public Meeting 06.09.14

2 pilot program or have schools like it  
3 included in the pilot program, which is  
4 exactly what we did. We took schools  
5 during that period of time that were  
6 built between 1950 and 1978. After  
7 1978 they weren't making PCBs anymore?

8 AUDIENCE SPEAKER: Not even in the  
9 lights?

10 MR. HOLDEN: No. The lights are  
11 older -- PCBs were banned in 1978 so they  
12 haven't been manufactured since that  
13 period of time. If lights were installed  
14 during the period of time 1950 to 1978,  
15 those are the lighting fixtures that are  
16 being removed now by the City of New  
17 York.

18 So what we did was we looked at  
19 schools that were built during that  
20 period of time, that 25 year period of  
21 time. We took some that were built in  
22 the early stages because materials used  
23 in the 1950s and '60s were different  
24 than 1970, so we looked at the vintage  
25 of the school first and then we also

1 EPA Public Meeting 06.09.14

2 looked at the ventilation systems.

3 Some of them that were built in  
4 the latter part of the PCB era have  
5 full HVAC systems and -- central air  
6 conditioning, so we looked at those.  
7 And then we looked at some that were  
8 built prior to the time that central  
9 air conditioning was put into the  
10 schools, and those schools ventilate in  
11 a different ways, through exhaust fans  
12 on the roof. So we wanted to see how  
13 those schools were.

14 So with our collaboration with  
15 EPA, we came up with criteria, and we  
16 tried to find a cross section of  
17 buildings that would be representative  
18 of those built during 1950 to 1978 that  
19 we could use as a, kind of a  
20 laboratory, if you will, for testing  
21 materials, removing lights and doing  
22 the other things to try to control PCBs  
23 in the classroom environment.

24 MR. KLUESNER: Thank you, Ross.

25 Any other comments or questions?

1 EPA Public Meeting 06.09.14

2 MS. ORLANDO: I'm a parent. Some of  
3 you might remember me from years ago at  
4 P.S. 53. So, I guess all these years  
5 out, we've kind of figured out that the  
6 lights were a problem and we're taking  
7 them out of the schools in what was a ten  
8 year time period but was reduced it to a  
9 two year, or roughly, 2016.

10 Do you think that the lights is an  
11 easier fix than the caulk is going to  
12 prove to be, if we determine that the  
13 caulk is the issue or another source?  
14 Because I think I looked in P.S. 3,  
15 maybe it was April of 2012, and right  
16 after the lights were removed, some of  
17 the air was still coming up with high  
18 PCBs or higher or slighter higher than  
19 the EPA standards in one of the  
20 hallways. And they duplicated like  
21 opening the door and shutting the door  
22 and retesting the air, and what they  
23 found was that it was, again, caulk,  
24 indoor caulk at that time, that was  
25 emitting, and so they encapsulated

EPA Public Meeting 06.09.14

that; is that right?

So if we take all the lights out of the building and we still have the caulk and we are finding that it is emitting or it's, you know, fryable or it's damaged, like is that going to be something that we can really control and is that what the next step is? That's the first part of it, and I know we're studying it and we're figuring out how to handle it. And I think we've determined that ventilating the buildings is a great help. Opening windows and HVAC or cleaning it, or containing it, I mean, is that the push of all this? Are we going to make sure that we have proper ventilation in all the schools, that it's still going to have PCB caulk in it, whether it's internally or externally. I know it's still there. And in P.S. 3 are we still going to do the windows or is that a project that was done or not done?

1 EPA Public Meeting 06.09.14

2 Because I think it was supposed to  
3 have the windows, but then halfway  
4 through we determined that it was the  
5 lights that were the problem, so that  
6 school became the pilot for the ballast  
7 replacement only.

8 And how are we on windows with the  
9 rest of the city, are we still doing  
10 window jobs and how are we cleaning the  
11 air? Are they testing the schools when  
12 they're doing it?

13 MR. KLUESNER: Do you have answers,  
14 or do you have --

15 MS. ORLANDO: I'm done.

16 MR. HAKLAR: Patty, you're going to  
17 have to remind me if I miss or forget one  
18 of your questions.

19 I think your first questions was  
20 how difficult is it going to be to deal  
21 with caulk versus the light fixtures.  
22 Light fixtures is, it's a  
23 straightforward solution, the old light  
24 fixtures, they have, they could have  
25 PCBs, you remove them, that takes cares



1 EPA Public Meeting 06.09.14

2 of that.

3 Caulk is a little more of an  
4 issue. As I mentioned during my part  
5 of the presentation, caulk, we still  
6 have to determine -- we still have to  
7 get a handle what is the contribution  
8 of caulk, of the PCBs in the caulk to  
9 the indoor air.

10 Are there ways of preventing the  
11 PCBs from moving from the caulk into  
12 the indoor air? If you have a light  
13 fixture, it's very easy to remove. If  
14 you have a bead of caulk.

15 I can tell you about just briefly  
16 about a project that I had, a building  
17 that a 25,000 linear feet of caulk.  
18 That's a little more challenging and it  
19 wasn't a school, it was a commercial  
20 building, but it's still a little more  
21 challenging from a -- than removing the  
22 light fixtures. I think that was your  
23 first question.

24 Could you remind me of your second  
25 question.

1 EPA Public Meeting 06.09.14

2 MS. ORLANDO: The ventilation.

3 MR. HAKLAR: Ventilation, the  
4 question was about the whole issue of  
5 using ventilation to reduce the  
6 concentrations. Ventilation is a very  
7 good thing to do, but it's not the only  
8 thing. We are considering the  
9 ventilation to be one component of what's  
10 ultimately going to be a multi component  
11 solution, whether that includes the  
12 housekeeping, the best management  
13 practices, whether it includes something  
14 else, but it's one thing, it's a good  
15 thing but we realize with hundreds of  
16 schools, ventilation is a significant --  
17 is a significant way to go.

18 Your third question was?

19 MS. ORLANDO: Are there a lot of  
20 windows jobs being done and testing the  
21 air, we know it's contributing to PCBs in  
22 that building in addition to lights, are  
23 lights being done?

24 MR. HAKLAR: I'm going to look at  
25 the School Construction Authority as I

1 EPA Public Meeting 06.09.14

2 respond to this.

3 The questions was: are there still  
4 window replacement jobs going on in the  
5 city and the answer is yes. I'm seeing  
6 the School Construction Authority  
7 nodding yes. And during the job is the  
8 air being tested?

9 MR. HOLDEN: To answer your question  
10 about window replacement projects, those  
11 are -- it's a major category of work  
12 throughout the city of New York, not just  
13 in buildings that may have PCBs, but  
14 because the average age of a New York  
15 City's public school is 65 years, windows  
16 need to be replaced, a lot have the old  
17 wooden ones.

18 So whenever the SCA does a window  
19 replacement project, we first retest  
20 the caulk to see whether or not it has  
21 PCBs. We do that for two reason. One  
22 is we want to handle it in the  
23 appropriate manner during in the  
24 removal of the windows. And two, the  
25 window and the caulk need to be

1 EPA Public Meeting 06.09.14

2 disposed of in the proper way, so if  
3 there is PCBs in the caulk, then that  
4 has to go to a different landfill than  
5 if there was not.

6 So yes, you can count on the  
7 School Construction Authority for  
8 structural reasons, but, of course, the  
9 good part of that is that whenever we  
10 do a window replacement project, the  
11 caulk, and that's where much of the  
12 caulk is found, is removed along with  
13 the windows so we will continue to do  
14 many windows replacement projects every  
15 single year.

16 MS. ORLANDO: Is it affecting the  
17 indoor air or we don't necessarily test  
18 the indoor air.

19 MR. HAKLAR: No, we don't test air,  
20 we will test the bulk product, the caulk,  
21 to see whether or not there is PCBs in  
22 it. And we go on from there. Sometimes  
23 we've done wipe samples under certain  
24 circumstances. We are, as part of the  
25 pilot program looking at different air

EPA Public Meeting 06.09.14  
testing methodologies, that's something  
that we're working with the EPA on now,  
but it's part of the continuing research  
that Jim Haklar and Ed Gerdis were  
mentioning earlier.

MR. KLUESNER: Thank you.

Next comment or question?

Would you like to come up here?  
I'm sorry to make folks come up here, I  
apologize for that.

AUDIENCE SPEAKER: Just a quick  
question, I just didn't know, the pilot  
program was paid for by the City?

MR. GERDIS: Yes.

AUDIENCE SPEAKER: How much did it  
cost? Do we have an estimated cost?

MR. HOLDEN: I don't know exactly  
but we're talking about millions of  
dollars.

AUDIENCE SPEAKER: Thank you.

MR. KLUESNER: The next comment of  
question?

MS. YOUNG: Hi, my name is Barbara  
Young, my daughter is a student here, and

1 EPA Public Meeting 06.09.14

2 I wanted to know what these light  
3 fixtures are going to be replaced with.  
4 I don't know if I missed that because I  
5 was late.

6 The new energy efficient light  
7 bulbs are not safe for everyone,  
8 especially people with Lupus. There is  
9 health concerns with those.

10 And the second part of my question  
11 is if you're doing anything to test for  
12 other toxins in the air such as mold.  
13 It sounds like the ventilation will be  
14 good for all toxins, but is this only  
15 focused on the lights and the caulking  
16 or all toxins?

17 MR. KLUESNER: I'm going to answer  
18 your second question first. The pilot  
19 study focused on PCBs because our  
20 agreement was, that we reached with the  
21 City was under what's called the Toxic  
22 Substances Control Act, under which PCBs  
23 are present.

24 So what we're talking about  
25 tonight, the work pertains to

1 EPA Public Meeting 06.09.14

2 specifically to the PCBs.

3 With regard to the light  
4 replacements, and again I'm looking to  
5 the School Construction Authority,  
6 they're -- the older lights are  
7 replaced with the energy efficient  
8 lights. We have -- I can't respond to  
9 your comment on the health affects from  
10 energy efficient lighting on people  
11 with immune system compromises such as  
12 Lupus.

13 But Mark, do you want to say  
14 something? This is Mark Maddaloni,  
15 EPA's risk assessment.

16 MR. MADDALONI: Hi, I'm Mark  
17 Maddaloni, toxicologist.

18 I'm not familiar with the issue  
19 that you're raising. If you will send  
20 me some literature on it, I would be  
21 glad to study it and get back to you,  
22 but I would need more information than  
23 just the association of immunologic  
24 Lupus or other immunological disorders  
25 with lighting fixtures. I need to know

1 EPA Public Meeting 06.09.14

2 exactly what was in these lighting  
3 fixtures.

4 I know there's mercury, which is  
5 certainly an issue.

6 And so, just to expand and  
7 reiterate what Jim said, ventilation  
8 will have a lot of benefits. Yes, it's  
9 not only PCBs. Every indoor  
10 environment has a whole host of issues  
11 ranging, depending on the age of the  
12 building from asbestos, lead, other  
13 volatile organic compounds, mold, other  
14 infectious agents. There's literally a  
15 laundry list of environmental  
16 contaminants.

17 And one other thing I could gladly  
18 share with you, EPA has what's called a  
19 school's environmental health program.  
20 We have a great pamphlet, if you will,  
21 called Sensible Schools. And it goes  
22 through in great detail all of the  
23 environmental health issues that could  
24 be encountered in the schools and how  
25 to deal with them. So I'll be glad to



1 EPA Public Meeting 06.09.14

2 follow-up after the meeting and get you  
3 some really good literature on all the  
4 other things in addition to PCBs that  
5 you should be thinking about if you  
6 have a child in a public school or a  
7 parochial school or any school.

8 MR. KLUESNER: And also just to say  
9 one point, final thing. If there's a  
10 question tonight that we cannot answer,  
11 just to answer, you know, immediately, we  
12 will look into it and we will respond in  
13 our response in the summary.

14 MR. HAKLAR: Thank you, Mark, for  
15 the offer. I'll have in the back, if you  
16 want information mailed to you, put your  
17 name and address and we'll get it to you  
18 that way.

19 Thanks. Next comment or question?

20 AUDIENCE SPEAKER: I have another  
21 question. I think someone said that  
22 there were 1100 air sample collected; is  
23 that correct? Were those 1100 samples  
24 only taken in the five schools in the  
25 pilot study or were they from schools all

1 EPA Public Meeting 06.09.14

2 across the city?

3 MR. HOLDEN: Only five schools.

4 AUDIENCE SPEAKER: Okay. And can  
5 anyone speak to how the samples, like the  
6 specifics on how the samples were  
7 collected, because, I mean, I just know  
8 from, you know, my own experience, if I  
9 come into the building, you know, at 7:45  
10 in the morning, the building has been  
11 closed, the air conditioning has not been  
12 on overnight, sampling at that time might  
13 give you a complete different number than  
14 if you sample at 12 o'clock in the  
15 afternoon or 3 o'clock after the day is  
16 done and the air conditioning has been on  
17 or windows have been open.

18 So can anyone speak to how the air  
19 sampling was done?

20 MR. KLUESNER: Ed, do you want to  
21 come up and just give a brief  
22 explanation?

23 MR. GERDIS: Yes. So we try to do  
24 the air sampling representative of normal  
25 building conditions, so, in the winter,

1 EPA Public Meeting 06.09.14

2 for instance, and depending upon how the  
3 school operates. Some schools have HVAC  
4 systems, so those schools, they don't  
5 open up the windows. The HVAC cools it  
6 when it's warm and heats it when it's  
7 cold. So in that case, we just take the  
8 samples under normal conditions.

9 We have tried to -- you know, we  
10 can't sample when the kids and the  
11 teachers are in the actual room,  
12 there's a sampling pump, there's a  
13 tripod and a stand and it's actually a  
14 glass tube. It is hung from the tripod  
15 at breathing zone height to try to  
16 represent the exposure that someone  
17 might, you know, the breathing zone of  
18 the child or of a person.

19 So that's what -- we set the  
20 samples up, we let them run for  
21 approximately six-and-a-half, seven  
22 hours, in that time frame. They're  
23 calibrated before and after we do our  
24 sampling. We get the flow rate of air  
25 that's actually drawn across the media

1 EPA Public Meeting 06.09.14

2 and then calculate the volume of air  
3 that's been drawn and that goes with  
4 the sample. The chain of custody to  
5 the laboratory. The laboratory then  
6 analyzes the sample and provide the  
7 information and we've been sending it  
8 to an independent laboratory to get the  
9 data back and then we get, you know we  
10 can convert it to the concentration  
11 that was in the air during that time  
12 period.

13 So, the actual conditions during  
14 sample can vary. So if it's in the  
15 warmer months and it doesn't have a,  
16 the building doesn't have an HVAC  
17 system, a lot of times the way the  
18 buildings operate is you have exhaust  
19 fans on the roof that be ducted to the  
20 core of the building, then they go to  
21 the classrooms, with the concept of you  
22 open up the windows, the air comes in  
23 and gets exhausted out so there's a  
24 ventilation system, that's how they  
25 were designed.

1 EPA Public Meeting 06.09.14

2 So obviously, if it's freezing  
3 cold outside, people don't have the  
4 windows open so we typically close the  
5 windows in the winter, and then in the  
6 spring and the fall when it's nice out,  
7 people like to have fresh air. It's  
8 always good for a number of reasons,  
9 not only this, to have fresh air. The  
10 windows are opened, cracked to allow  
11 fresh air in so that ventilation can  
12 operate as designed.

13 AUDIENCE SPEAKER: Thank you.

14 MS. YOUNG: So I couldn't really  
15 hear the response in total to my question  
16 about the energy efficient light bulbs,  
17 but I think he said he was a toxicologist  
18 and he was unaware of any health effects.

19 Those new light bulbs, if they  
20 break, they contain mercury. You're  
21 supposed to handle them with gloves,  
22 and if they break your supposed to have  
23 a hazmat team.

24 People that own them in houses  
25 don't know or do that so I don't allow

1 EPA Public Meeting 06.09.14

2 them in my own home, but how will I  
3 know that if a lightbulb breaks in  
4 school, that a hazmat team is going to  
5 come clean it up, and I think that  
6 could be just as or more dangerous than  
7 what these light bulbs you're replacing  
8 are. Just because they're cheap  
9 doesn't mean they're safe.

10 MR. MADDALONI: No, I agree, I in  
11 fact mentioned I thought you were  
12 probably referring to mercury.

13 The newer generation of  
14 fluorescent bulbs have a lot less  
15 mercury. And I know EPA has guidance  
16 on how to manage a broken bulb. It  
17 doesn't require a hazmat team, it  
18 requires sensible steps to confine the  
19 area of the breakage and try to not  
20 spread the small, the small amount of  
21 mercury that is there.

22 And, again, I'll give you my card.  
23 I could pass along the guidance that  
24 EPA has on the management of broken  
25 fluorescent bulbs, but we would like no

1 EPA Public Meeting 06.09.14

2 exposure, but we simply couldn't  
3 mobilize hazmat teams every time  
4 someone broke a fluorescent bulb. It's  
5 not possible.

6 MR. KLUESNER: Thank you, Mark.

7 Yes.

8 Roseann, I'm going to have ask you  
9 to stand right here and try not to  
10 move.

11 MS. APPLETON: Roseann Appleton,  
12 UFT. Just if I could speak to you about  
13 what is the protocol? Are protocols  
14 listed in each school for removal of the  
15 mercury-laden bulbs, the fluorescent  
16 bulbs? I mean, does the maintenance,  
17 does everybody know how to do this?

18 MR. HOLDEN: You Have to speak to  
19 the City about their custodial staff. I  
20 can't really respond to that because I'm  
21 the School Construction Authority and  
22 we'll install the new light fixture,  
23 taking out the old ones, but we don't do  
24 the maintenance in the school, we don't  
25 remove light bulbs or tubes that are --

1 EPA Public Meeting 06.09.14

2 that need to be replaced.

3 So we can take your concern back  
4 to the Division of School Facilities of  
5 the Department of Education and see if  
6 we can get a response for you on how  
7 what training there is for handling  
8 that type of fixture.

9 MS. APPLETON: Thank you. The only  
10 reason why I ask is because as these  
11 things come along, you know, we have to  
12 be trained, all of us, to know what's  
13 going on.

14 I'm health and safety in Staten  
15 Island and I would like to go to my  
16 colleagues and say yes, I know how. So  
17 if they know how I would like to know.

18 MR. HOLDEN: I agree. I should send  
19 you our Sensible Steps brochure for  
20 dealing with environmental health hazards  
21 in school. As I said there is a laundry  
22 list and you added one more, mercury,  
23 yes. When florescent bulbs break,  
24 mercury is released and it needs to be  
25 dealt with.



1 EPA Public Meeting 06.09.14

2 MR. KLUESNER: Again, I apologize  
3 for the very awkward audio set up here.  
4 I appreciate your patience in that.

5 More comments or questions? I  
6 think the lady had had her hand up.

7 AUDIENCE SPEAKER: My name is Eileen  
8 Sulfuri (ph). On Friday I received a  
9 letter from my children's school that  
10 says that the lights were leaking. I  
11 looked at the results from the P.S. 3  
12 pilot and I see that if lights and  
13 ballasts that were removed were described  
14 as contaminated and impacted, but I don't  
15 know what that means so, Mike, if someone  
16 could explain it.

17 And also so the Petridies School,  
18 the lights will be replaced, they will  
19 be given a higher priority, I wonder  
20 how long that will be, what we can  
21 expect and should I tell my children to  
22 look up and don't sit under the light  
23 in the interim?

24 MR. KLUESNER: So, I guess one of  
25 your questions was about what to expect

1 EPA Public Meeting 06.09.14

2 when the light fixture project occurs.

3 AUDIENCE SPEAKER: I would like to  
4 know when.

5 MR. GERDIS: All right, so, yeah, as  
6 part of the -- and that was designed for  
7 disposal, so as was mentioned earlier, or  
8 may have been mentioned earlier, one of  
9 the issues is when you remove these  
10 fixture you have to properly dispose of  
11 them and we don't dispose of PCBs in a  
12 landfill that's not appropriately  
13 designed to receive those.

14 So the idea is that when a ballast  
15 is in a fixture, over time it can leak.  
16 And when it does leak, it leaks into  
17 the fixture primarily. And then so  
18 when we open up that fixture and we see  
19 it has leaked, that fixture then gets  
20 disposed appropriately as well as the  
21 ballast. So if the fixture it's not  
22 impacted, and you can recycle the  
23 aluminum.

24 Going forward, there's a protocol  
25 for doing light fixture removal and

1 EPA Public Meeting 06.09.14

2 that involves evaluation of the light  
3 fixture, the segregation under  
4 controlled conditions by trained people  
5 who send the material to certified  
6 facilities for disposal. So it's not  
7 done by just regular electricians, it's  
8 not done by maintenance people that,  
9 you know, it's a wholesale program  
10 that's designed for and the School  
11 Construction Authority has protocols on  
12 how that operation gets implemented.  
13 And it's a detailed thing with  
14 oversight.

15 Is there another point to your  
16 question?

17 Oh yeah, I'm sorry, the other  
18 question you had said about should your  
19 kids be looking up, right, so as part  
20 of the ongoing we talked about that  
21 there is a protocol for removal of all  
22 of the fixtures in all of the schools  
23 by 2016.

24 In the interim there's a protocol  
25 for inspection and maintenance of those

1 EPA Public Meeting 06.09.14

2 ballasts that are in place on the list  
3 to be removed. And that includes  
4 having the custodians go around and  
5 check them and evaluate them, so that's  
6 what they're doing. And if there is  
7 some kind of an instance, because a lot  
8 of times they'll start to smoke, lights  
9 will flicker, the custodians then,  
10 there's a protocol on how to address  
11 that.

12 The room is evacuated. The  
13 fixtures removed. The room is  
14 ventilated. There are all these steps  
15 that go into it before the room as been  
16 reoccupied, so I don't think your child  
17 has to look up because the custodians  
18 are doing that.

19 AUDIENCE SPEAKER: Are those  
20 protocols reviewed in the peer review?

21 MR. GERDIS: Are those protocols  
22 reviewed in the peer review?

23 AUDIENCE SPEAKER: Right.

24 MR. HAKLAR: The protocols for a  
25 light fixture --

1 EPA Public Meeting 06.09.14

2 AUDIENCE SPEAKER: The inspection --

3 MR. HAKLAR: We did task the peer  
4 reviewers with a question of inspection  
5 of light fixtures, and the peer  
6 reviewers, I'm thinking just off the top  
7 of my head, it was something, is visual  
8 inspection enough. The peer reviewers  
9 had different responses. One may have  
10 said pull down the light fixtures,  
11 another may have said, no, that's fine,  
12 that's fine.

13 What we have to think in the back  
14 of our heads is that it's the middle of  
15 2014, so by the end, in two-and-a-half  
16 years all of these are going to be  
17 gone. So we have the peer reviewers'  
18 responses, we've looked at it and we've  
19 didn't see a need to address the issue  
20 further.

21 MR. KLUESNER: Dan.

22 MR. KRAFT: My name is Dan Kraft and  
23 I'm a retired EPA employee for about 30  
24 years or so. I managed the Regional EPA  
25 PCB enforcement program, I retired in

1 EPA Public Meeting 06.09.14

2 2010, and I was involved with the initial  
3 monitoring of the pilot study.

4 A quick comment on the inspection  
5 of the visual inspection of the lights  
6 for PCBs, as was mentioned, it's an  
7 element in the proposed preferred  
8 citywide remedy, it requires periodic  
9 visual inspection of all T12 light  
10 fixtures, and appears to be a  
11 reasonable remedial action to  
12 undertake.

13 It's required by the April 11,  
14 2011, New York Department of Education  
15 T12 ballast inspection protocol in all  
16 city public schools.

17 However, the protocol instructs  
18 the custodians and building managers  
19 that, quote, this inspection is an  
20 external inspection only, underlined.  
21 And you are not to open -- not to open  
22 is underlined, any ballast covers or  
23 light diffusers to perform your  
24 inspections.

25 This type of a visual inspection

1 EPA Public Meeting 06.09.14

2 protocol would not have discovered the  
3 pervasive PCB leakage in the light  
4 fixtures at P.S. 309 and P.S. 199M. If  
5 you don't look, you can't see and you  
6 won't find.

7 To identify leaking ballasts or  
8 prior leakage in a light fixture, you  
9 must look inside the ballast cover and  
10 actually observe the exposed ballast.  
11 So I call this the City PCB light  
12 fixture visual don't look, don't find  
13 PCB leak detection program. And I have  
14 a question to New York City  
15 representatives, but probably they  
16 won't be able to answer it because  
17 they're from the School Construction  
18 Authority.

19 And that is: Why does the  
20 protocol forbid the custodians and  
21 building managers from opening the  
22 fixture where they can readily see if  
23 there's any leakage in the fixtures?  
24 Are you able to answer that or do we  
25 need -- okay, Department of Education

1 EPA Public Meeting 06.09.14

2 person.

3 I want to take a step back and  
4 quickly provide some comments on this  
5 summary report and the New York City  
6 pilot study. As a general comment, the  
7 May 24, 2013 summary report for the New  
8 York City PCB caulk pilot study, in my  
9 opinion, is an my artful presentation  
10 that often generalizes or  
11 oversimplifies negative findings. It  
12 state findings or conclusion not  
13 supported by their data, references EPA  
14 analysis of city data as if to render  
15 some legitimacy to their statements  
16 fails to provide meaningful data  
17 summaries. They summarize the numbers  
18 of samples taken, but not the actual  
19 data. And referring the reader instead  
20 to data compiled in other reports.

21 The summary document does include  
22 many accurate statements and  
23 supportable conclusions, but in general  
24 it's a document that I believe most  
25 parents, school teachers and staff and



1 EPA Public Meeting 06.09.14

2 the general public will find impossible  
3 to critically evaluate.

4 There are two serious flaws in the  
5 pilot study design and implementation.  
6 The first one is dilution of PCB air  
7 samples with outside air. On finding  
8 significant, high, unacceptable PCB air  
9 levels in early sampling at all three  
10 initial pilot schools, that was P.S.  
11 309K, 199M and 178X, the air sampling  
12 conditions were changed to allow large  
13 volumes of outside air shown not to  
14 contain detectable levels of PCBs into  
15 the spaces being tested during the  
16 period over which the samples were  
17 actually being collected.

18 This dilution by outside air  
19 resulted in measuring low PCB air  
20 levels meeting EPA guidelines. This  
21 poisoning of the air data by dilution  
22 with outside air makes it useless for  
23 evaluating the impact of PCB caulk  
24 remediation or removal of other PCB  
25 sources such as leaking or leaked PCBs

1 EPA Public Meeting 06.09.14

2 in light fixtures on indoor air quality.  
3 A golden opportunity was missed.

4 Pilot study implementation changed  
5 from one with some possibility of  
6 scientific objectiveness to one  
7 designed to present the best possible  
8 conditions to insure that low PCB air  
9 levels meeting EPA guidelines would be  
10 found. The impact of this revised  
11 strategy, that is air sampling with  
12 windows open or with air conditioning  
13 units operating is clearly seen in the  
14 pre-remedial PCB air levels found in  
15 2011 at P.S. 183Q, which was a window  
16 and PCB caulk removal project, and at  
17 P.S. 3R, which was to have all of their  
18 florescent light fixtures replaced.

19 All classrooms tested at P.S.  
20 183Q, prior to any remediation, found  
21 air levels below EPA guidelines. At  
22 P.S. 3R, not only did all classroom air  
23 levels meet EPA guidelines prior to any  
24 remediation, the levels were  
25 essentially nondetect for PCBs, the

1 EPA Public Meeting 06.09.14

2 same level found in outside air. That  
3 pre-remedial sampling was conducted  
4 with windows open and/or air  
5 conditioning -- or air conditioning  
6 units operating.

7 Post remediation sampling in the  
8 classrooms at P.S. 3R were nondetect  
9 for PCBs. Supported by these sampling  
10 results, one might argue that it is  
11 unnecessary to address any PCB caulk or  
12 PCB disposal contamination in schools.  
13 PCB air levels were shown to be  
14 protective by EPA guidelines.

15 These results suggest that an  
16 additional pilot study result and  
17 finding be included in the summary  
18 report. Specifically that the addition  
19 of sufficient outside air to the indoor  
20 spaces being tested for their PCB air  
21 levels during the actual air sample  
22 collection periods can insure that the  
23 measured PCB air levels will be low and  
24 fully conform to EPA guidelines.

25 The second major flaw is the

1 EPA Public Meeting 06.09.14

2 failure to test the existing window  
3 caulking at both P.S. 309K and P.S.  
4 199M. Both schools had complete window  
5 replacements with removal of high level  
6 PCB caulk around 2008. The caulk in  
7 both schools contained high levels of  
8 PCBs.

9 My recollection, I could be wrong  
10 on this, in excess of 200,000 parts per  
11 million. Since the pilot, PCB caulk  
12 removal studies showed that this  
13 remedial measure was ineffective in  
14 eliminating the PCB contamination of  
15 the original caulk, that's because PCBs  
16 that migrated into the surrounding  
17 substrate has a tendency to migrate  
18 back into the new PCBs. It could be a  
19 significant source of PCBs to inside  
20 air in the schools. This source of  
21 PCBs was not considered by SCA when it  
22 performed its relative source strength  
23 and modeling analyzes, so the window  
24 caulking in these two schools should be  
25 immediately tested for PCB content.

1 EPA Public Meeting 06.09.14

2 Did the pilot study produce any  
3 positive results? Yes, definitely.

4 As Jim Haklar mentioned, the  
5 extensive investigation of possible PCB  
6 sources in the air and air ventilation  
7 studies performed by the City were  
8 important, very important contributions  
9 that advanced the understanding of  
10 these areas and how they might impact  
11 PCB air levels.

12 Most importantly in my view,  
13 however, was the discovery of pervasive  
14 leakage of PCBs in the light fixtures,  
15 which focused attention on this  
16 additional separate and likely very  
17 significant source of PCBs in the  
18 schools. Thanks to the efforts of the  
19 New York lawyers for the public  
20 interest, there is now a court ordered  
21 deadline, December of 2016 for the  
22 compete replacement of PCB containing  
23 light fixtures in the city schools.

24 Another positive result I believe  
25 is that in the pre-remedial and other

1 EPA Public Meeting 06.09.14

2 PCB air testing done at the three  
3 initial pilot schools without the  
4 windows open afforded a glimpse of the  
5 unacceptable high PCB levels in the  
6 air. They found up to almost 50,000  
7 nanograms per cubic meter, when the  
8 guidance is between 100 and 300  
9 nanograms, to which the occupants might  
10 have been exposed over many years in  
11 the past and may continue to be exposed  
12 until leaked PCBs present in the light  
13 fixtures and PCBs in PCBs and other  
14 materials are removed or sufficient  
15 ventilation by outside air is  
16 continually provided.

17 On leaking PCB ballasts or leaked  
18 PCBs in the florescent fixtures, soon  
19 after the pilot study began in July  
20 2010, PCB classroom air measurements  
21 that were significantly above the EPA  
22 guideline in every classroom tested at  
23 P.S. 309 and P.S. 199M led to the  
24 inspection and the completely  
25 unexpected discovery of substantial

1 EPA Public Meeting 06.09.14

2 pervasive leakage for PCB containing  
3 ballasts and/or evidence of historical  
4 leaking in the fluorescent light  
5 fixture.

6 And to put it in perspective,  
7 recognize that the testing in these  
8 spaces in these pilot schools was only  
9 a sample. It only really looked at  
10 about 15 percent of the classrooms and  
11 other spaces in the school.

12 At PS -- the percentage of leaking  
13 PCB ballasts or non-leaking ballasts  
14 with evidence of historical leakage  
15 found that in P.S. 309, 62 percent of  
16 the ballasts were either PCB leaking  
17 ballasts or the fixture was impacted by  
18 other leaks.

19 In P.S. 199M, 68.6 percent were  
20 found to be PCB leaking ballasts or  
21 other impacted -- impacted by historic  
22 leaks. And at P.S. 178X, 43.2 percent  
23 was found, but these were only Pre-K,  
24 kindergarten and special ed classrooms,  
25 so it wasn't the entire school.

1 EPA Public Meeting 06.09.14

2 These light fixtures were removed  
3 and replaced as supplemental remedial  
4 measures. In the summer of 2011, the  
5 light fixtures were removed as a  
6 primary remedial measure in P.S. 3R.  
7 At P.S. 3R, 90 percent of the light  
8 fixtures were described as contaminated  
9 and 94.8 of the ballasts were described  
10 as impacted.

11 Now, I think it's very important  
12 that EPA and the public get the same  
13 kind of information that was collected  
14 at the three initial pilot schools so  
15 you can understand the significance and  
16 how contaminated the situation might be  
17 in all the schools.

18 It was already asked and I also  
19 ask that contaminated and impacted be  
20 defined in the P.S. 3R context similar  
21 to the way it was at P.S. 309 and 199.

22 Did the City count PCB ballasts,  
23 leaking PCB ballasts and non-leaking  
24 ballasts with evidence of historical  
25 leakage in P.S. 3R as was done in the



1 EPA Public Meeting 06.09.14

2 first three pilot schools? If yes,  
3 please provide the tally so it can be  
4 compared to the findings in the first  
5 three schools. If not, why were these  
6 counts not taken?

7 After the window PCBs replacement  
8 remedial measure was completed at P.S.  
9 183Q, all the T12 light fixture were  
10 also replaced. What was the leaking  
11 PCB ballast et cetera tally for this  
12 school? Was it taken? Please provided  
13 the information if it was.

14 And as reported in the EPA New  
15 York City PCB program web site, and it  
16 was updated here, as of March the web  
17 site reported that complete PCB light  
18 fixtures replacement had been completed  
19 in 217 school buildings, I think it was  
20 238 at this point, and there were 541  
21 remaining school buildings in which the  
22 PCB light fixture replacement is not  
23 yet complete.

24 Were the leaking PCB ballasts et  
25 cetera tallies taken and recorded for

1 EPA Public Meeting 06.09.14

2 those of the 217 schools not elsewhere  
3 already provided, please provide the  
4 detailed PCB ballast tallies for each  
5 of the schools. If the school list  
6 were not complied, why not? Were any  
7 of the 217 completed buildings that did  
8 not have evidence -- were there any of  
9 the 217 completed buildings that did  
10 not evidence substantial PCB ballast  
11 leakage or historical or leaking PCB  
12 ballasts, the historical leakage  
13 indicates that the ballast may have  
14 failed in the past and been replaced by  
15 the custodian and there may be a new  
16 ballast, there might be one that  
17 contained PCBs or there might be one  
18 that did not have any PCBs in the  
19 capacitor in the ballast that was  
20 replaced. But the leak is evidence  
21 that a prior PCB ballast may have  
22 leaked.

23 EPA enforcement of PCB disposal  
24 and use violations regarding city  
25 school B12 Florescent light fixtures.

1 EPA Public Meeting 06.09.14

2 In August of 2010, the PCB PCBs  
3 pilot program unexpectedly found  
4 significant pervasive leaking or leaked  
5 PCBs in the light fixtures at the three  
6 initial pilot schools. Intact,  
7 non-leaking PCB florescent light  
8 ballasts, more precisely the small PCB  
9 capacitor in those ballast, were  
10 authorized by regulation in 1979 for  
11 continued use.

12 However, if such a ballast leaks  
13 PCBs, its use is no longer authorized  
14 and is therefore prohibited by the  
15 Toxic Substances Control Act, and any  
16 leaked PCBs is a violation of PCB  
17 disposal requirements.

18 In January and February of 2011,  
19 EPA inspected nine additional New York  
20 City schools and collected 145 PCB  
21 samples of leaking or leaked material  
22 in the florescent light fixture in those  
23 schools, almost 78 percent of the  
24 samples collected had regulated levels  
25 of PCBs. Leaking or leaked PCBs were

1 EPA Public Meeting 06.09.14

2 found at every school where PCB samples  
3 were collected.

4 The inspection results confirmed  
5 the findings at the initial three pilot  
6 schools and suggested possible  
7 pervasive long-term, possibly since  
8 1979, PCB noncompliance throughout New  
9 York City public schools with the  
10 potential for significant exposure of  
11 students and staff. However, no EPA  
12 enforcement action was taken to require  
13 an expedited removal of this potential  
14 PCB exposure and correction of these  
15 violations.

16 So my question to EPA is why did  
17 EPA not take an enforcement action  
18 addressing the PCB violations in city  
19 school fixtures?

20 I want to make one comment to a  
21 comment made in the Manhattan public  
22 meeting. One of the gentlemen there  
23 kind of suggested that the consultant  
24 might not be accurately sampling the  
25 data, that they might cook the books.

1 EPA Public Meeting 06.09.14

2 In my experience, I found nothing  
3 of that sort. I have no question on  
4 the quality of the data that the  
5 contractor collected and the analysis  
6 that was performed. My problem is with  
7 the sampling protocol, the fact that  
8 the windows were opened and outside air  
9 was introduced.

10 And there was another question  
11 about air testing after window  
12 replacement. And I know Miss Donnegan  
13 was involved at a school in 2008 or  
14 2009 where there was an active windows  
15 replacement ongoing. The parents at  
16 P.S. 199 were also involved with an  
17 active window replacement and they were  
18 complaining that the children would  
19 come to school and there would be dust  
20 all over the place and they were  
21 concerned that the students were being  
22 exposed to PCBs.

23 Well, at the -- at P.S. 183Q,  
24 where they did a window replacement  
25 job, the pre-remediation testing, all

1 EPA Public Meeting 06.09.14

2 the samples met requirements. But  
3 after the remediation the air samples,  
4 all of them did not meet the  
5 requirements and so they had to do a  
6 supplemental cleaning.

7 So the very rigorous dust control  
8 procedures that were used may be need  
9 to be looked at to see if they're  
10 sufficient, and that we might also  
11 suggest that after -- well, first of  
12 all, that these replacements only take  
13 place when students are not present.  
14 And that after you complete the  
15 renovation, that you do air sampling to  
16 confirm that you have gotten -- cleaned  
17 up the area. And, of course, I would  
18 recommend that you don't have the  
19 windows open when you do the sampling.

20 I'm done, thank you.

21 MR. KLUESNER: The longest stretch  
22 without any feedback and we thank you for  
23 that.

24 Any other comments or questions?

25 Yes, ma'am.

1 EPA Public Meeting 06.09.14

2 MS. ORLANDO: Again, this has been  
3 many years for me so I'm very grateful  
4 with the work that's been done with the  
5 EPA and the City and New York lawyers,  
6 and I know it's been a lot of money, but  
7 it's really all of our money, it's  
8 taxpayers' money, it's our kids, it's  
9 your kids, it's our families that are  
10 teaching there, you know, so I think if  
11 we are pulling together and we can find  
12 solutions, this is good work.

13 This is far for me, but, you know,  
14 scientific studies, here's what I know.  
15 My kid gets a science project, okay.  
16 We're trying to prove something,  
17 hypothesis. I have controls and I have  
18 variables. If I change the variables  
19 I've changed the results. So I think  
20 I'm hearing that we're feeding the  
21 rooms with clean air and we're getting  
22 a clean read or a better read, and  
23 that's great because it helps me figure  
24 out how I want to solve the problem.  
25 But I have to think about my kid in a

EPA Public Meeting 06.09.14

third grade classroom post window job  
every night in the middle of winter,  
with no ventilation and the heat  
blasting and not windows open, and dust  
remnants and particles being left and  
falling in the room from the night  
before, and I need to know, is there  
any or will there ever be a reading in  
a room environment like that, with no  
ventilation, no air, the heat on. Are  
we ever going to ever see what could be  
a possible air reading for kids in a  
classroom, because I can't say that any  
classroom in the city or every  
classroom in the city will always have  
this perfect ventilation system.

We don't even have it here, we  
have a big fan blowing in here to make  
some air happen. So, I mean, I think  
we have come forward and you know I'm  
thankful of you for the work that's  
been done, but, I mean, do we really  
know and do we really have any idea if  
there's greater contamination in the



1 EPA Public Meeting 06.09.14

2 classroom in a different setting or  
3 different time or different day? Thank  
4 you.

5 MR. KLUESNER: And we'll see if  
6 anyone has an answer now or if we need to  
7 get back in the responsiveness summary,  
8 we can do it there.

9 Thank you, we will provide a  
10 response at a later date.

11 Any other questions or comments  
12 before we wrap this up tonight?

13 I want to thank you all for coming  
14 out. Thank you for your patience and  
15 understanding with the audio system.

16 Thank you.

17 (Concluded at 8:15 p.m.)  
18  
19  
20  
21  
22  
23  
24  
25

EPA Public Meeting 06.09.14

CERTIFICATE

STATE OF NEW YORK )

)ss:

COUNTY OF RICHMOND)

I, DANIELLE GRANT, a Certified  
Shorthand Reporter, and Notary  
Public within and for the State of  
New York, do hereby certify:  
the above statement hereinbefore  
set forth, is a true record of the  
proceedings.

I further certify that I am not  
related to any of the parties to  
this action by blood or marriage  
and that I am in no way interested  
in the outcome of this matter.

In witness whereof, I have hereunto  
set my hand this 23rd day of June,  
2014.

---

DANIELLE GRANT

<p><b>A</b></p> <p><b>able</b> 63:16,24</p> <p><b>above-entitled</b> 2:15</p> <p><b>accurate</b> 31:9 64:22</p> <p><b>accurately</b> 76:24</p> <p><b>acknowledge</b> 4:7</p> <p><b>acknowledged</b> 28:2</p> <p><b>Act</b> 46:22 75:15</p> <p><b>action</b> 62:11 76:12 76:17 82:15</p> <p><b>active</b> 77:14,17</p> <p><b>activism</b> 30:21</p> <p><b>activity</b> 12:17,18 14:7</p> <p><b>actual</b> 21:9 51:11 52:13 64:18 67:21</p> <p><b>add</b> 34:13</p> <p><b>added</b> 11:21,23 56:22</p> <p><b>addition</b> 18:2 42:22 49:4 67:18</p> <p><b>additional</b> 18:19 34:7 67:16 69:16 75:19</p> <p><b>address</b> 6:3,7,9 11:14 15:6,7 17:12,13 24:5,10 49:17 60:10 61:19 67:11</p> <p><b>addressed</b> 7:22 15:13 18:9</p> <p><b>addresses</b> 6:10 8:4</p> <p><b>addressing</b> 22:25 24:14 76:18</p> <p><b>ADDRESSING</b> 1:10</p> <p><b>adequate</b> 22:22</p> <p><b>adjust</b> 4:20,25</p> <p><b>administration</b> 30:25</p> <p><b>advanced</b> 69:9</p> <p><b>afforded</b> 70:4</p> <p><b>afternoon</b> 50:15</p> <p><b>age</b> 43:14 48:11</p> <p><b>AGENCY</b> 1:2 3:5</p>	<p><b>agents</b> 48:14</p> <p><b>aggressive</b> 16:10</p> <p><b>ago</b> 7:11 8:7 26:2 29:9 38:3</p> <p><b>agree</b> 54:10 56:18</p> <p><b>agreement</b> 8:2,3,3 8:5 10:10,11,12 19:5,16 27:19 46:20</p> <p><b>ahead</b> 5:13</p> <p><b>air</b> 12:24 13:18 14:3,4 18:12 23:18,25 24:17,21 25:2,10 27:15 28:10,16 31:19 37:5,9 38:17,22 40:11 41:9,12 42:21 43:8 44:17 44:18,19,25 46:12 49:22 50:11,16,18 50:24 51:24 52:2 52:11,22 53:7,9 53:11 65:6,7,8,11 65:13,18,19,21,22 66:2,8,11,12,14 66:21,22 67:2,4,5 67:13,19,20,21,23 68:20 69:6,6,11 70:2,6,15,20 77:8 77:11 78:3,15 79:21 80:11,13,20</p> <p><b>al</b> 13:14</p> <p><b>allow</b> 25:9 53:10,25 65:12</p> <p><b>alternatives</b> 11:7 12:6 23:3</p> <p><b>aluminum</b> 23:7 58:23</p> <p><b>amount</b> 23:10 54:20</p> <p><b>analysis</b> 64:14 77:5</p> <p><b>analyzed</b> 7:15 22:17</p> <p><b>analyzes</b> 52:6 68:23</p> <p><b>and/or</b> 67:4 71:3</p> <p><b>anomaly</b> 13:11</p> <p><b>answer</b> 5:5,8 20:12</p>	<p>43:5,9 46:17 49:10,11 63:16,24 81:6</p> <p><b>answers</b> 5:11 20:13 40:13</p> <p><b>anymore</b> 36:7</p> <p><b>apologize</b> 33:3 45:11 57:2</p> <p><b>appear</b> 32:4</p> <p><b>appears</b> 62:10</p> <p><b>Appleton</b> 55:11,11 56:9</p> <p><b>applications</b> 11:13</p> <p><b>apply</b> 10:2</p> <p><b>appreciate</b> 57:4</p> <p><b>appreciated</b> 5:17 5:19</p> <p><b>approach</b> 8:17,19 10:17 12:16</p> <p><b>appropriate</b> 21:8 43:23</p> <p><b>appropriately</b> 17:23 58:12,20</p> <p><b>approved</b> 17:9</p> <p><b>approximately</b> 33:14 51:21</p> <p><b>April</b> 38:15 62:13</p> <p><b>area</b> 21:23 22:4,9 28:13,21 54:19 78:17</p> <p><b>areas</b> 28:7 30:21 69:10</p> <p><b>argue</b> 67:10</p> <p><b>arrived</b> 4:16</p> <p><b>artful</b> 64:9</p> <p><b>asbestos</b> 48:12</p> <p><b>aside</b> 6:4 34:6</p> <p><b>asked</b> 26:6 72:18</p> <p><b>assembled</b> 20:18</p> <p><b>assessment</b> 47:15</p> <p><b>associated</b> 20:7</p> <p><b>association</b> 47:23</p> <p><b>attention</b> 69:15</p> <p><b>AUDIENCE</b> 4:24 33:5 34:13 36:8 45:12,16,21 49:20 50:4 53:13 57:7</p>	<p>58:3 60:19,23 61:2</p> <p><b>audio</b> 57:3 81:15</p> <p><b>auditorium</b> 6:12</p> <p><b>August</b> 75:2</p> <p><b>Authority</b> 9:4 35:10,13 42:25 43:6 44:7 47:5 55:21 59:11 63:18</p> <p><b>authorized</b> 75:10 75:13</p> <p><b>Avenue</b> 3:7</p> <p><b>average</b> 35:3 43:14</p> <p><b>awkward</b> 57:3</p> <p><b>B</b></p> <p><b>back</b> 5:10 6:11 13:12 18:24 29:23 47:21 49:15 52:9 56:3 61:13 64:3 68:18 81:7</p> <p><b>background</b> 6:14 9:10</p> <p><b>ballast</b> 17:6 21:14 21:15,19 31:5 40:6 58:14,21 62:15,22 63:9,10 73:11 74:4,10,13 74:16,19,21 75:9 75:12</p> <p><b>ballasts</b> 11:18,25 12:2 14:10 21:18 21:21,24 30:19 31:3 57:13 60:2 63:7 70:17 71:3 71:13,13,16,17,20 72:9,22,23,24 73:24 74:12 75:8</p> <p><b>banned</b> 7:7 10:4 36:11</p> <p><b>Barbara</b> 45:24</p> <p><b>barriers</b> 23:6</p> <p><b>based</b> 8:14 24:17 27:20</p> <p><b>basing</b> 33:24</p> <p><b>basis</b> 15:16 17:4 18:11,22</p>	<p><b>bead</b> 23:22 41:14</p> <p><b>began</b> 70:19</p> <p><b>Beginning</b> 9:23</p> <p><b>behalf</b> 30:13</p> <p><b>believe</b> 4:13 22:20 24:9,13 26:25 27:8 64:24 69:24</p> <p><b>believed</b> 24:16,23</p> <p><b>benefits</b> 48:8</p> <p><b>best</b> 17:7 24:24 25:17 31:14 42:12 66:7</p> <p><b>better</b> 4:21 29:5 79:22</p> <p><b>big</b> 15:25 16:2 80:19</p> <p><b>billion</b> 9:19,20</p> <p><b>BIPHENYLS</b> 1:10</p> <p><b>bit</b> 6:13 9:7,11 10:20 19:20 24:20</p> <p><b>blasting</b> 80:5</p> <p><b>blood</b> 82:15</p> <p><b>blowing</b> 80:19</p> <p><b>board</b> 23:7</p> <p><b>books</b> 76:25</p> <p><b>borough</b> 12:4 34:25 35:6</p> <p><b>boroughs</b> 32:5</p> <p><b>bottom</b> 20:24 29:18</p> <p><b>brand</b> 34:19</p> <p><b>break</b> 53:20,22 56:23</p> <p><b>breakage</b> 54:19</p> <p><b>breaks</b> 54:3</p> <p><b>breathing</b> 23:24 27:14 51:15,17</p> <p><b>Brendan</b> 30:15</p> <p><b>brick</b> 23:14</p> <p><b>brief</b> 5:12 50:21</p> <p><b>briefly</b> 29:23 41:15</p> <p><b>brochure</b> 56:19</p> <p><b>broke</b> 55:4</p> <p><b>broken</b> 54:16,24</p> <p><b>Brooklyn</b> 19:19</p> <p><b>building</b> 3:7 7:14 8:13 18:7 23:21 24:8 25:20,21,24</p>
---	--	---	---	--

26:11 27:2,3,5 28:16 33:8 34:19 35:21,24 39:4 41:16,20 42:22 48:12 50:9,10,25 52:16,20 62:18 63:21 <b>buildings</b> 6:23,24 16:12 24:22 32:13 35:16 37:17 39:14 43:13 52:18 73:19 73:21 74:7,9 <b>built</b> 6:24 25:7 34:16,19,23 35:20 35:21 36:6,19,21 37:3,8,18 <b>bulb</b> 54:16 55:4 <b>bulbs</b> 46:7 53:16,19 54:7,14,25 55:15 55:16,25 56:23 <b>bulk</b> 18:15 44:20 <b>B12</b> 74:25	23:10,11,14,16,17 23:23 25:20,20,22 25:22,23 26:7,9 26:11,16 27:5 28:12,19 38:11,13 38:23,24 39:5,20 40:21 41:3,5,8,8 41:11,14,17 43:20 43:25 44:3,11,12 44:20 64:8 65:23 66:16 67:11 68:6 68:6,11,15 <b>caulking</b> 31:8,12 46:15 68:3,24 <b>caulks</b> 9:24 <b>causing</b> 7:6 <b>cell</b> 5:18 <b>central</b> 37:5,8 <b>certain</b> 44:23 <b>certainly</b> 5:9 48:5 <b>CERTIFICATE</b> 82:2 <b>certified</b> 59:5 82:6 <b>certify</b> 82:9,13 <b>cetera</b> 73:11,25 <b>chain</b> 52:4 <b>challenging</b> 41:18 41:21 <b>change</b> 79:18 <b>changed</b> 65:12 66:4 79:19 <b>characterizing</b> 28:10 <b>cheap</b> 54:8 <b>check</b> 19:11 60:5 <b>chemical</b> 6:18 <b>chemically</b> 23:9 <b>chemicals</b> 6:15 <b>child</b> 49:6 51:18 60:16 <b>children</b> 31:17,22 32:13 33:9,24 57:21 77:18 <b>children's</b> 57:9 <b>Christina</b> 30:22 <b>circumstances</b> 44:24	<b>city</b> 5:13 7:10,24 8:6,7,8,11,15,24 9:4,17 19:5 20:14 21:25 22:6,12 24:7 27:20 28:4,5 30:20 31:2 34:5 34:11 35:17 36:16 40:9 43:5,12 45:14 46:21 50:2 55:19 62:16 63:11 63:14 64:5,8,14 69:7,23 72:22 73:15 74:24 75:20 76:9,18 79:5 80:15,16 <b>citywide</b> 1:4 8:18 9:12 10:17,22 16:20 27:23,25 29:17 62:8 <b>City's</b> 1:11 6:2 19:14 21:5,13 24:9 27:22 29:17 43:15 <b>classroom</b> 22:5 31:13 37:23 66:22 70:20,22 80:2,14 80:15,16 81:2 <b>classrooms</b> 52:21 66:19 67:8 71:10 71:24 <b>clean</b> 22:8 54:5 79:21,22 <b>cleaned</b> 78:16 <b>cleaning</b> 26:8 39:15 40:10 78:6 <b>clearance</b> 22:9,11 22:21 <b>clearly</b> 66:13 <b>close</b> 53:4 <b>closed</b> 31:18,19 50:11 <b>cold</b> 51:7 53:3 <b>collaboration</b> 37:14 <b>colleagues</b> 56:16 <b>collect</b> 7:13 <b>collected</b> 13:4,6	14:3,5 49:22 50:7 65:17 72:13 75:20 75:24 76:3 77:5 <b>collecting</b> 28:9 <b>collection</b> 67:22 <b>come</b> 14:9 16:19 45:9,10 50:9,21 54:5 56:11 77:19 80:21 <b>comes</b> 52:22 <b>comfortable</b> 4:18 <b>coming</b> 4:11,15 10:16 38:17 81:13 <b>comment</b> 5:5 27:17 32:24 34:11,14 45:8,22 47:9 49:19 62:4 64:6 76:20,21 <b>comments</b> 1:3 4:5 5:15 6:2,5,6,8 27:20 29:13,19,21 30:6,9 32:20,22 37:25 57:5 64:4 78:24 81:11 <b>commerce</b> 9:22 <b>commercial</b> 9:22 41:19 <b>commit</b> 31:3,4 <b>company</b> 9:5 <b>compared</b> 73:4 <b>compete</b> 69:22 <b>compiled</b> 64:20 <b>complaining</b> 77:18 <b>complete</b> 18:6 50:13 68:4 73:17 73:23 78:14 <b>completed</b> 16:16,17 19:3 20:17 73:8 73:18 74:7,9 <b>completely</b> 70:24 <b>complex</b> 14:20 15:19 <b>complied</b> 74:6 <b>component</b> 21:16 42:9,10 <b>components</b> 21:20 <b>compounds</b> 48:13	<b>comprehensive</b> 21:7 33:16 <b>compromises</b> 47:11 <b>comptroller</b> 4:8 32:18 <b>concentration</b> 52:10 <b>concentrations</b> 13:17,18 15:8 24:25 31:12 42:6 <b>concept</b> 52:21 <b>concern</b> 56:3 <b>concerned</b> 31:7 77:21 <b>concerns</b> 46:9 <b>Concluded</b> 81:17 <b>conclusion</b> 64:12 <b>conclusions</b> 64:23 <b>concrete</b> 23:15,16 <b>conditioning</b> 37:6,9 50:11,16 66:12 67:5,5 <b>conditions</b> 17:24 25:4 31:16 50:25 51:8 52:13 59:4 65:12 66:8 <b>conduct</b> 19:6 31:14 <b>conducted</b> 13:24 17:18 18:16 67:3 <b>confine</b> 54:18 <b>confirm</b> 78:16 <b>confirmed</b> 76:4 <b>conform</b> 67:24 <b>Congress</b> 7:6 <b>consent</b> 8:2 10:11 <b>consider</b> 10:7 <b>considered</b> 6:18 68:21 <b>considering</b> 42:8 <b>consistent</b> 26:14 <b>consists</b> 22:3 <b>constantly</b> 16:14 <b>construction</b> 6:23 9:4 24:12 27:4 35:9,12 42:25 43:6 44:7 47:5 55:21 59:11 63:17
--	---	---	--	---

<b>consultant</b> 8:23 9:5 19:24 20:3,10,13 20:17 76:23 <b>contact</b> 19:22 <b>contain</b> 53:20 65:14 <b>contained</b> 68:7 74:17 <b>containing</b> 17:20 39:16 69:22 71:2 <b>containment</b> 17:24 <b>contaminants</b> 48:16 <b>contaminated</b> 57:14 72:8,16,19 <b>contaminating</b> 27:7 <b>contamination</b> 67:12 68:14 80:25 <b>content</b> 68:25 <b>context</b> 72:20 <b>continually</b> 70:16 <b>continue</b> 44:13 70:11 <b>continued</b> 75:11 <b>continuing</b> 45:4 <b>contractor</b> 77:5 <b>contribute</b> 28:20 <b>contributing</b> 42:21 <b>contribution</b> 28:15 41:7 <b>contributions</b> 69:8 <b>control</b> 37:22 39:8 46:22 75:15 78:7 <b>controlled</b> 17:25 59:4 <b>controls</b> 79:17 <b>convert</b> 52:10 <b>cook</b> 76:25 <b>cools</b> 51:5 <b>COORDINATOR</b> 3:4 <b>core</b> 52:20 <b>CORP</b> 3:14 <b>correct</b> 49:23 <b>correction</b> 76:14 <b>cost</b> 45:17,17	<b>council</b> 32:7,17 <b>councilman</b> 4:10 30:11,14 32:17 <b>count</b> 44:6 72:22 <b>counts</b> 73:6 <b>COUNTY</b> 82:5 <b>couple</b> 28:24 <b>course</b> 24:11 32:6 44:8 78:17 <b>court</b> 69:20 <b>cover</b> 63:9 <b>covers</b> 62:22 <b>cracked</b> 53:10 <b>cracking</b> 26:12 <b>criteria</b> 37:15 <b>critically</b> 65:3 <b>cross</b> 37:16 <b>cubic</b> 70:7 <b>currently</b> 16:16 18:20 34:23 <b>custodial</b> 55:19 <b>custodian</b> 74:15 <b>custodians</b> 60:4,9 60:17 62:18 63:20 <b>custody</b> 52:4	<b>deal</b> 8:19 40:20 48:25 <b>dealing</b> 24:18 25:3 56:20 <b>dealt</b> 56:25 <b>December</b> 16:9 69:21 <b>defer</b> 35:9 <b>defined</b> 72:20 <b>definitely</b> 69:3 <b>Department</b> 30:24 56:5 62:14 63:25 <b>depending</b> 48:11 51:2 <b>derived</b> 31:8 <b>described</b> 57:13 72:8,9 <b>design</b> 65:5 <b>designed</b> 52:25 53:12 58:6,13 59:10 66:7 <b>desk</b> 22:14 <b>detail</b> 48:22 <b>detailed</b> 59:13 74:4 <b>details</b> 8:25 <b>detectable</b> 65:14 <b>detection</b> 63:13 <b>deteriorated</b> 26:9 <b>determine</b> 17:19 28:11 31:11 38:12 41:6 <b>determined</b> 39:13 40:4 <b>develop</b> 10:21 18:21 <b>developed</b> 16:25 17:4,8 <b>development</b> 23:19 <b>diagnostic</b> 31:15 <b>different</b> 11:6 28:8 35:5 36:23 37:11 44:4,25 50:13 61:9 81:2,3,3 <b>difficult</b> 40:20 <b>diffusers</b> 62:23 <b>dilution</b> 65:6,18,21 <b>direct</b> 19:22	<b>discovered</b> 63:2 <b>discovery</b> 69:13 70:25 <b>discuss</b> 8:24 <b>discussed</b> 12:6 <b>discussing</b> 28:3 <b>discussions</b> 7:23,25 <b>disorders</b> 47:24 <b>disposal</b> 58:7 59:6 67:12 74:23 75:17 <b>dispose</b> 58:10,11 <b>disposed</b> 44:2 58:20 <b>district</b> 16:5 <b>districts</b> 10:25 <b>Division</b> 56:4 <b>document</b> 14:25 18:18 20:21 64:21 64:24 <b>documents</b> 20:22 <b>DOE</b> 31:24 32:6 <b>doing</b> 18:12 30:3,7 37:21 40:9,12 46:11 58:25 60:6 60:18 <b>dollars</b> 45:20 <b>Donnegan</b> 77:12 <b>door</b> 17:16 38:21 38:21 <b>doors</b> 10:3 31:18 31:18 <b>Dorp</b> 1:5 2:17,18 <b>dramatic</b> 14:11,16 <b>drawn</b> 51:25 52:3 <b>ducted</b> 52:19 <b>uplicated</b> 38:20 <b>dust</b> 12:25 77:19 78:7 80:5	<b>ed</b> 3:13 8:22,24 9:3 18:25 23:2 27:24 45:5 50:20 71:24 <b>Edison</b> 3:8 <b>Education</b> 30:24 56:5 62:14 63:25 <b>educational</b> 32:8 <b>effective</b> 24:18 <b>effectively</b> 13:25 <b>effects</b> 53:18 <b>efficiency</b> 15:12 <b>efficient</b> 25:11 46:6 47:7,10 53:16 <b>efforts</b> 69:18 <b>Eileen</b> 57:7 <b>either</b> 35:25 71:16 <b>elastic</b> 9:24 <b>elected</b> 30:10 <b>electrical</b> 6:20 15:9 21:15 <b>electricians</b> 59:7 <b>element</b> 62:7 <b>eliminating</b> 68:14 <b>emerging</b> 10:8 15:19 <b>emitting</b> 38:25 39:6 <b>employee</b> 61:23 <b>encapsulant</b> 11:9 <b>encapsulated</b> 38:25 <b>encapsulation</b> 11:8 12:10,19 <b>encountered</b> 48:24 <b>energy</b> 15:12 25:10 46:6 47:7,10 53:16 <b>enforcement</b> 61:25 74:23 76:12,17 <b>enter</b> 33:11 <b>entered</b> 7:23 <b>entire</b> 71:25 <b>environment</b> 15:11 32:8 37:23 48:10 80:10 <b>environmental</b> 1:2 3:5 9:6 10:9 20:6 48:15,19,23 56:20 <b>EPA</b> 3:1,15,16,17
---	--	--	--	---

4:1 5:1,13 6:1 7:1 7:7,17 8:1,6 9:1 10:1,5 11:1 12:1 13:1,15,15 14:1 14:25 15:1 16:1 17:1 18:1,9,20 19:1,5,22 20:1,9 20:19 21:1 22:1,7 23:1 24:1 25:1 26:1 27:1,21 28:1 28:4 29:1 30:1 31:1,24 32:1,6 33:1 34:1 35:1 36:1 37:1,15 38:1 38:19 39:1 40:1 41:1 42:1 43:1 44:1 45:1,3 46:1 47:1 48:1,18 49:1 50:1 51:1 52:1 53:1 54:1,15,24 55:1 56:1 57:1 58:1 59:1 60:1 61:1,23,24 62:1 63:1 64:1,13 65:1 65:20 66:1,9,21 66:23 67:1,14,24 68:1 69:1 70:1,21 71:1 72:1,12 73:1 73:14 74:1,23 75:1,19 76:1,11 76:16,17 77:1 78:1 79:1,5 80:1 81:1 82:1 <b>EPA's</b> 23:18 47:15 <b>era</b> 37:4 <b>errors</b> 19:12 <b>especially</b> 6:22 46:8 <b>essentially</b> 12:12 13:22 14:5,8 66:25 <b>established</b> 21:25 <b>estimated</b> 45:17 <b>et</b> 73:11,24 <b>evacuated</b> 60:12 <b>evacuating</b> 22:4 <b>evaluate</b> 10:15 60:5 65:3	<b>evaluated</b> 12:5,6 23:4 <b>evaluating</b> 11:24 65:23 <b>evaluation</b> 10:13 59:2 <b>EVANGELISTA</b> 3:17 <b>event</b> 21:14 <b>everybody</b> 4:17 30:3,7 55:17 <b>evidence</b> 71:3,14 72:24 74:8,10,20 <b>exactly</b> 36:4 45:18 48:2 <b>exception</b> 13:10 <b>excess</b> 68:10 <b>exclusively</b> 31:24 <b>exhaust</b> 37:11 52:18 <b>exhausted</b> 52:23 <b>existing</b> 68:2 <b>expand</b> 48:6 <b>expanded</b> 33:23 34:10 <b>expanding</b> 33:22 <b>expect</b> 57:21,25 <b>expedited</b> 76:13 <b>experience</b> 50:8 77:2 <b>experiences</b> 35:4 <b>experts</b> 19:13 <b>explain</b> 57:16 <b>explanation</b> 35:8 50:22 <b>exposed</b> 23:21 27:13 63:10 70:10 70:11 77:22 <b>exposure</b> 23:8 24:15 27:11 51:16 55:2 76:10,14 <b>exposures</b> 26:24 <b>extensive</b> 69:5 <b>extent</b> 5:8 <b>exterior</b> 18:5,7 <b>external</b> 62:20 <b>externally</b> 39:21	<b>e-mail</b> 4:5 6:8,9 <hr/> <b>F</b> <b>face</b> 11:2 <b>facilities</b> 56:4 59:6 <b>fact</b> 14:2 30:20 54:11 77:7 <b>failed</b> 74:14 <b>fails</b> 64:16 <b>failure</b> 21:14 68:2 <b>fall</b> 53:6 <b>falling</b> 80:7 <b>familiar</b> 47:18 <b>families</b> 79:9 <b>fan</b> 4:19 80:19 <b>fans</b> 4:24 37:11 52:19 <b>far</b> 34:22 79:13 <b>February</b> 75:18 <b>feedback</b> 78:22 <b>feeding</b> 79:20 <b>feel</b> 4:18 <b>feet</b> 41:17 <b>felt</b> 13:22 <b>field</b> 20:7 21:9 <b>figure</b> 79:23 <b>figured</b> 38:5 <b>figuring</b> 39:11 <b>final</b> 10:11 19:18 49:9 <b>find</b> 13:13 33:19 37:16 63:6,12 65:2 79:11 <b>finding</b> 39:5 65:7 67:17 <b>findings</b> 8:16 14:19 15:5,25 21:3 27:21 64:11,12 73:4 76:5 <b>fine</b> 61:11,12 <b>first</b> 4:21 10:23 15:14 28:8 34:16 36:25 39:10 40:19 41:23 43:19 46:18 65:6 73:2,4 78:11 <b>five</b> 8:10 10:14,14 10:19 11:6,8 32:5	33:13,17 34:2 49:24 50:3 <b>fix</b> 38:11 <b>fixture</b> 11:25 12:11 16:23 41:13 55:22 56:8 58:2,10,15 58:17,18,21,25 59:3 60:25 63:8 63:12,22 73:9,22 <b>fixtures</b> 12:14 14:10,16,18 15:6 16:6,12 28:17 29:10 40:21,22,24 46:3 47:25 48:3 59:22 60:13 61:5 61:10 62:10 63:4 63:23 66:18 69:14 69:23 70:13,18 72:2,5,8 73:18 74:25 75:5 <b>fixure</b> 21:17 58:19 71:5,17 75:22 <b>fixures</b> 16:5 36:15 41:22 66:2 76:19 <b>flaking</b> 26:12 <b>flaw</b> 67:25 <b>flaws</b> 65:4 <b>flexible</b> 25:22 <b>flicker</b> 60:9 <b>floor</b> 7:3 22:15 <b>fluorescent</b> 56:23 66:18 70:18 74:25 75:7,22 <b>flow</b> 51:24 <b>fluorescent</b> 21:16 54:14,25 55:4,15 71:4 <b>flyers</b> 6:10 21:2 <b>focus</b> 14:17 26:7,9 <b>focused</b> 14:14 46:15,19 69:15 <b>folks</b> 30:23 32:24 45:10 <b>follow</b> 9:9 <b>followed</b> 12:16 17:13 <b>FOLLOWS</b> 4:3	<b>follow-up</b> 34:14 49:2 <b>forbid</b> 63:20 <b>forget</b> 40:17 <b>formal</b> 7:25 8:3 <b>former</b> 30:25 <b>forth</b> 82:11 <b>forward</b> 58:24 80:21 <b>found</b> 6:15 8:14 13:8,19 14:6,20 15:18 20:23 21:7 23:19 38:23 44:12 66:10,14,20 67:2 70:6 71:15,20,23 75:3 76:2 77:2 <b>four-and-a-half</b> 8:7 <b>frame</b> 31:5 51:22 <b>freezing</b> 53:2 <b>fresh</b> 25:9 53:7,9 53:11 <b>Friday</b> 57:8 <b>fryable</b> 39:6 <b>full</b> 31:15,16 37:5 <b>fully</b> 67:24 <b>further</b> 18:22 28:22 61:20 82:13 <hr/> <b>G</b> <b>gained</b> 15:22 <b>game</b> 16:21 <b>gaps</b> 28:2 <b>GARY</b> 3:14 <b>gauze</b> 22:13,16,17 <b>general</b> 21:5 64:6 64:23 65:2 <b>generalizes</b> 64:10 <b>generally</b> 14:8 22:3 <b>generated</b> 9:21 <b>generation</b> 54:13 <b>gentlemen</b> 76:22 <b>Georgio</b> 30:22 <b>Gerdis</b> 3:13 8:22 9:2,3 23:2 27:24 45:5,15 50:23 58:5 60:21 <b>getting</b> 27:6 29:20
---	--	---	---	--

79:21 <b>give</b> 34:25 50:13,21 54:22 <b>given</b> 57:19 <b>glad</b> 47:21 48:25 <b>gladly</b> 48:17 <b>glass</b> 51:14 <b>glimpse</b> 70:4 <b>gloves</b> 53:21 <b>go</b> 5:13 24:4 26:10 30:2 42:17 44:4 44:22 52:20 56:15 60:4,15 <b>goal</b> 10:16 <b>goes</b> 48:21 52:3 <b>going</b> 4:20 8:21 9:6 9:8,13 16:6,8,15 18:12,15,23 19:17 27:9 28:23 29:22 35:8 38:11 39:7 39:17,19,23 40:16 40:20 42:10,24 43:4 46:3,17 54:4 55:8 56:13 58:24 61:16 80:12 <b>golden</b> 66:3 <b>good</b> 6:19 13:23 29:2,3,21 42:7,14 44:9 46:14 49:3 53:8 79:12 <b>gotten</b> 23:25 78:16 <b>grade</b> 80:2 <b>graduated</b> 34:18 <b>grandson</b> 33:11 <b>GRANT</b> 1:23 2:16 82:6,22 <b>grateful</b> 79:3 <b>great</b> 39:14 48:20 48:22 79:23 <b>greater</b> 80:25 <b>groove</b> 7:3 <b>guess</b> 11:4 16:13 35:7 38:4 57:24 <b>guidance</b> 10:6 13:15,16,18,21 54:15,23 70:8 <b>guideline</b> 70:22	<b>guidelines</b> 65:20 66:9,21,23 67:14 67:24 <hr/> <b>H</b> <b>Haklar</b> 3:3 5:22 18:25 34:3 35:7 40:16 42:3,24 44:19 45:5 49:14 60:24 61:3 69:4 <b>halfway</b> 40:3 <b>hallway</b> 22:5 <b>hallways</b> 38:20 <b>hand</b> 8:22 29:23 32:23 57:6 82:19 <b>handle</b> 39:12 41:7 43:22 53:21 <b>handling</b> 56:7 <b>happen</b> 80:20 <b>happens</b> 33:24 <b>hazardous</b> 7:5 30:18 <b>hazards</b> 56:20 <b>hazmat</b> 53:23 54:4 54:17 55:3 <b>head</b> 61:7 <b>heads</b> 61:14 <b>health</b> 31:21 32:12 46:9 47:9 48:19 48:23 53:18 56:14 56:20 <b>hear</b> 4:22 5:3 30:4 33:13 53:15 <b>heard</b> 23:2 <b>hearing</b> 79:20 <b>heat</b> 6:20 80:4,11 <b>heats</b> 51:6 <b>height</b> 51:15 <b>held</b> 2:17 <b>help</b> 15:10 39:14 <b>helps</b> 79:23 <b>hereinbefore</b> 82:10 <b>hereunto</b> 82:18 <b>Hi</b> 45:24 47:16 <b>high</b> 1:5 2:17 7:20 15:8 38:17 65:8 68:5,7 70:5	<b>higher</b> 38:18,18 57:19 <b>highlights</b> 15:3 <b>historic</b> 71:21 <b>historical</b> 71:3,14 72:24 74:11,12 <b>history</b> 35:14 <b>hold</b> 5:15 <b>Holden</b> 3:18 35:11 35:11 36:10 43:9 45:18 50:3 55:18 56:18 <b>holding</b> 19:16 <b>home</b> 54:2 <b>host</b> 48:10 <b>hours</b> 51:22 <b>housecleaning</b> 13:24 <b>housekeeping</b> 25:15,17 26:8 42:12 <b>houses</b> 53:24 <b>hundreds</b> 16:11 24:6 42:15 <b>hung</b> 51:14 <b>HUNT</b> 3:14 <b>HVAC</b> 37:5 39:15 51:3,5 52:16 <b>hypothesis</b> 79:17 <hr/> <b>I</b> <b>idea</b> 58:14 80:24 <b>identified</b> 11:18 <b>identify</b> 63:7 <b>Ignizio</b> 30:14,17 31:2,6,23 <b>immediately</b> 49:11 68:25 <b>immune</b> 47:11 <b>immunologic</b> 47:23 <b>immunological</b> 47:24 <b>impact</b> 12:23 14:11 14:16 17:17 25:13 65:23 66:10 69:10 <b>impacted</b> 17:20 18:8 57:14 58:22	71:17,21,21 72:10 72:19 <b>impacting</b> 18:5 <b>impacts</b> 15:12 <b>implement</b> 18:21 <b>implementation</b> 65:5 66:4 <b>implemented</b> 17:7 17:22 59:12 <b>important</b> 69:8,8 72:11 <b>importantly</b> 69:12 <b>impossible</b> 65:2 <b>improvement</b> 17:14 18:3 <b>include</b> 28:6 35:25 64:21 <b>included</b> 10:12 11:8 36:3 67:17 <b>includes</b> 42:11,13 60:3 <b>independent</b> 19:10 19:22 52:8 <b>indicates</b> 74:13 <b>indication</b> 13:23 <b>individual</b> 35:4 <b>individuals</b> 7:12 <b>indoor</b> 23:17 25:2 28:10,15 38:24 41:9,12 44:17,18 48:9 66:2 67:19 <b>industry</b> 6:22 10:9 20:6 <b>ineffective</b> 68:13 <b>infectious</b> 48:14 <b>information</b> 10:21 14:13 15:20 20:2 47:22 49:16 52:7 72:13 73:13 <b>ingestion</b> 31:7 <b>inhaling</b> 23:24 <b>initial</b> 62:2 65:10 70:3 72:14 75:6 76:5 <b>initially</b> 14:14 34:15 <b>input</b> 20:15	<b>inside</b> 21:16 23:20 26:10 63:9 68:19 <b>inspect</b> 17:2,5 <b>inspected</b> 75:19 <b>inspection</b> 17:10 59:25 61:2,4,8 62:4,5,9,15,19,20 62:25 70:24 76:4 <b>inspections</b> 62:24 <b>install</b> 55:22 <b>installed</b> 25:25 26:4 36:13 <b>instance</b> 51:2 60:7 <b>instructs</b> 62:17 <b>insure</b> 31:21 32:11 66:8 67:22 <b>intact</b> 26:7,16 75:6 <b>interest</b> 69:20 <b>interested</b> 82:16 <b>interim</b> 57:23 59:24 <b>internally</b> 39:21 <b>introduced</b> 77:9 <b>introduction</b> 9:10 <b>investigation</b> 17:18 21:10 69:5 <b>involved</b> 62:2 77:13 77:16 <b>involves</b> 59:2 <b>Island</b> 1:6 2:18 56:15 <b>issue</b> 7:21,22 10:7,8 11:3,5,15,21 13:25 14:2,20,22 15:3,4,19,20 18:22 28:3 38:13 41:4 42:4 47:18 48:5 61:19 <b>issues</b> 17:6,11,13 48:10,23 58:9 <hr/> <b>J</b> <b>J</b> 3:18 <b>JAMES</b> 3:3 <b>January</b> 75:18 <b>Jersey</b> 3:8 <b>Jim</b> 5:21 9:2,15
---	---	--	--	---

18:24 29:25 45:5 48:7 69:4 <b>job</b> 1:24 4:17 17:15 17:16 18:6 43:7 77:25 80:2 <b>jobs</b> 5:2 18:4 40:10 42:20 43:4 <b>joints</b> 10:3 <b>July</b> 70:19 <b>June</b> 1:12 27:18 82:19	<b>known</b> 8:12 52:9 <b>Kraft</b> 61:22,22	65:20 66:9,14,21 66:23,24 67:13,21 67:23 68:7 69:11 70:5 75:24 <b>light</b> 11:25 12:11 12:14 14:10,10,16 14:18 15:6 16:4,6 16:12,23 21:14,15 21:17,17 28:17 29:9 40:21,22,23 41:12,22 46:2,6 47:3 53:16,19 54:7 55:22,25 57:22 58:2,25 59:2 60:25 61:5 61:10 62:9,23 63:3,8,11 66:2,18 69:14,23 70:12 71:4 72:2,5,7 73:9 73:17,22 74:25 75:5,7,22 <b>lightbulb</b> 54:3 <b>lighting</b> 36:15 47:10,25 48:2 <b>lights</b> 30:19 36:9,10 36:13 37:21 38:6 38:10,16 39:3 40:5 42:22,23 46:15 47:6,8 57:10,12,18 60:8 62:5 <b>limits</b> 13:16 <b>linear</b> 41:17 <b>list</b> 48:15 56:22 60:2 74:5 <b>listed</b> 55:14 <b>literally</b> 48:14 <b>literature</b> 47:20 49:3 <b>little</b> 4:21 6:13 9:7 9:10 10:20 19:20 23:22 24:20 27:4 41:3,18,20 <b>lived</b> 15:9 <b>lobbied</b> 31:2 <b>locations</b> 13:7 <b>long</b> 5:4 57:20	<b>longer</b> 75:13 <b>longest</b> 78:21 <b>long-term</b> 9:13 18:10,16 76:7 <b>look</b> 21:5,12 22:19 22:24 24:3 25:15 25:23 26:3,6,10 26:13,22 29:7 42:24 49:12 57:22 60:17 63:5,9,12 <b>looked</b> 8:10 29:20 36:18,24 37:2,6,7 38:14 57:11 61:18 71:9 78:9 <b>looking</b> 11:14,22 26:16,17,22 27:9 44:25 47:4 59:19 <b>lot</b> 6:19,24 9:21 10:25 15:20,21 25:7 28:25 29:2,3 42:19 43:16 48:8 52:17 54:14 60:7 79:6 <b>loud</b> 33:6 <b>low</b> 65:19 66:8 67:23 <b>lowering</b> 31:4 <b>Lupus</b> 46:8 47:12 47:24	19:24 61:24 <b>management</b> 17:7 25:17 42:12 54:24 <b>managers</b> 62:18 63:21 <b>managing</b> 13:25 17:9 <b>Manhattan</b> 76:21 <b>manmade</b> 6:14 <b>manner</b> 43:23 <b>manufacture</b> 7:7 <b>manufactured</b> 6:16 36:12 <b>March</b> 73:16 <b>Mark</b> 3:16 47:13 47:14,16 49:14 55:6 <b>marriage</b> 82:15 <b>masonry</b> 10:2 23:14 <b>massive</b> 35:22 <b>material</b> 17:21 27:6 59:5 75:21 <b>materials</b> 8:13 24:8 28:16 31:9 36:22 37:21 70:14 <b>Matteo's</b> 32:18 <b>matter</b> 2:15 29:14 82:17 <b>Matthews</b> 4:10 <b>ma'am</b> 78:25 <b>mean</b> 34:21 39:16 50:7 54:9 55:16 80:20,23 <b>meaningful</b> 64:16 <b>means</b> 24:18 57:15 <b>measure</b> 32:12 68:13 72:6 73:8 <b>measured</b> 67:23 <b>measurements</b> 70:20 <b>measures</b> 72:4 <b>measuring</b> 65:19 <b>media</b> 51:25 <b>meet</b> 66:23 78:4 <b>meeting</b> 1:3 3:1 4:1 5:1 6:1 7:1 8:1
<b>K</b>				<b>M</b>
<b>keep</b> 25:22 32:2 <b>key</b> 15:4 <b>kid</b> 79:15,25 <b>kids</b> 32:10 51:10 59:19 79:8,9 80:13 <b>Kill</b> 4:24 <b>kind</b> 10:24 17:5,11 37:19 38:5 60:7 72:13 76:23 <b>kindergarten</b> 71:24 <b>KLUESNER</b> 3:12 4:4,25 29:25 32:15 37:24 40:13 45:7,22 46:17 49:8 50:20 55:6 57:2,24 61:21 78:21 81:5 <b>knew</b> 7:20 <b>know</b> 4:14,17 7:9 10:2 13:7 15:11 28:17,21 29:5 30:16 33:7,18,19 33:21 34:22 39:6 39:10,21 42:21 45:13,18 46:2,4 47:25 48:4 49:11 50:7,8,9 51:9,17 53:25 54:3,15 55:17 56:11,12,16 56:17,17 57:15 58:4 59:9 77:12 79:6,10,13,14 80:8,21,24	<b>laboratory</b> 22:18 37:20 52:5,5,8 <b>lady</b> 57:6 <b>Lance</b> 2:18 <b>landfill</b> 44:4 58:12 <b>Landry</b> 30:11 <b>Lantry</b> 30:13,15 <b>large</b> 35:22 65:12 <b>late</b> 6:17 7:8 46:5 <b>laundry</b> 48:15 56:21 <b>Laura</b> 4:8 <b>lawyers</b> 69:19 79:5 <b>lead</b> 48:12 <b>leader</b> 11:5 30:14 30:17,17,25 31:6 31:23 <b>leading</b> 14:12,13 <b>leak</b> 21:22 58:15,16 63:13 74:20 <b>leakage</b> 63:3,8,23 69:14 71:2,14 72:25 74:11,12 <b>leaked</b> 58:19 65:25 70:12,17 74:22 75:4,16,21,25 <b>leaking</b> 21:24 57:10 63:7 65:25 70:17 71:4,12,16,20 72:23 73:10,24 74:11 75:4,21,25 <b>leaks</b> 58:16 71:18 71:22 75:12 <b>learned</b> 15:22 <b>led</b> 70:23 <b>left</b> 80:6 <b>legitimacy</b> 64:15 <b>letter</b> 19:9 57:9 <b>let's</b> 5:23 6:13 19:8 19:20 24:20 25:4 25:15 26:19 <b>level</b> 67:2 68:5 <b>levels</b> 14:8 65:9,14		<b>MADADALONI</b> 3:16 <b>Maddaloni</b> 47:14 47:16,17 54:10 <b>magic</b> 6:18 <b>mail</b> 4:5 6:7 <b>mailed</b> 49:16 <b>main</b> 5:24 27:13 <b>maintenance</b> 55:16 55:24 59:8,25 <b>major</b> 20:7 21:3 28:18 29:10,13 35:23 43:11 67:25 <b>making</b> 6:4 36:7 <b>manage</b> 54:16 <b>managed</b> 15:15	



9:1 10:1 11:1 12:1 13:1 14:1 15:1 16:1 17:1 18:1 19:1,17 20:1 21:1 22:1 23:1 24:1 25:1 26:1 27:1 28:1 29:1 30:1,23 31:1 32:1 33:1 34:1 35:1 36:1 37:1 38:1 39:1 40:1 41:1 42:1 43:1 44:1 45:1 46:1 47:1 48:1 49:1,2 50:1 51:1 52:1 53:1 54:1 55:1 56:1 57:1 58:1 59:1 60:1 61:1 62:1 63:1 64:1 65:1,20 66:1,9 67:1 68:1 69:1 70:1 71:1 72:1 73:1 74:1 75:1 76:1,22 77:1 78:1 79:1 80:1 81:1 82:1 <b>meetings</b> 32:5 <b>Member</b> 32:17 <b>mentioned</b> 9:15 25:19 27:24 29:8 30:5 41:4 54:11 58:7,8 62:6 69:4 <b>mentioning</b> 45:6 <b>mercury</b> 48:4 53:20 54:12,15,21 56:22,24 <b>mercury-laden</b> 55:15 <b>met</b> 78:2 <b>meter</b> 70:7 <b>methodologies</b> 45:2 <b>methods</b> 21:8 23:3 28:9 <b>microphone</b> 8:22 29:23 <b>middle</b> 61:14 80:3 <b>migrate</b> 68:17 <b>migrated</b> 68:16	<b>Mike</b> 57:15 <b>million</b> 68:11 <b>millions</b> 45:19 <b>mind</b> 32:2 33:2 <b>minimum</b> 18:13 <b>minority</b> 30:14,16 30:25 31:6,23 <b>missed</b> 46:4 66:3 <b>mission</b> 5:7 <b>mistaken</b> 34:17 <b>mistakes</b> 19:12 <b>mobilize</b> 55:3 <b>modeling</b> 68:23 <b>mold</b> 25:4 46:12 48:13 <b>moment</b> 29:9 34:9 <b>money</b> 79:6,7,8 <b>monitor</b> 18:14 <b>monitoring</b> 9:13 18:10,17 31:16 62:3 <b>month</b> 26:5 <b>months</b> 52:15 <b>morning</b> 50:10 <b>move</b> 23:13,15,17 26:19 55:10 <b>movement</b> 30:18 <b>moves</b> 24:21 <b>moving</b> 16:14 41:11 <b>multi</b> 42:10 <hr/> <b>N</b> <b>N</b> 2:14 <b>name</b> 9:3 30:15 35:11 45:24 49:17 57:7 61:22 <b>nanograms</b> 70:7,9 <b>nation</b> 10:24 11:2 <b>naturally</b> 6:15 <b>nearly</b> 28:20 <b>necessarily</b> 44:17 <b>need</b> 5:5 31:9 43:16 43:25 47:22,25 56:2 61:19 63:25 78:8 80:8 81:6 <b>needed</b> 15:18	<b>needs</b> 15:15,23 56:24 <b>negative</b> 64:11 <b>new</b> 1:5,6 2:17,17 2:18,18 3:8 7:10 7:18,24 8:5,6,15 8:23 9:3,17 11:3 19:5,13 20:14 24:7 26:3 27:19 28:4,5 30:19 34:19 36:16 43:12 43:14 46:6 53:19 55:22 62:14 63:14 64:5,7 68:18 69:19 73:14 74:15 75:19 76:8 79:5 82:3,9 <b>newer</b> 25:10 54:13 <b>News</b> 7:18 <b>nice</b> 53:6 <b>night</b> 80:3,7 <b>nine</b> 75:19 <b>nodding</b> 43:7 <b>noise</b> 4:19 <b>noncompliance</b> 76:8 <b>nondetect</b> 66:25 67:8 <b>non-leaking</b> 71:13 72:23 75:7 <b>norm</b> 35:2 <b>normal</b> 24:12 26:8 50:24 51:8 <b>northeast</b> 20:8 <b>Notary</b> 2:16 82:7 <b>note</b> 10:23 <b>notifications</b> 22:6 <b>not-so-good</b> 7:4 <b>number</b> 14:21 50:13 53:8 <b>numbers</b> 64:17 <b>NYLPI</b> 30:23 32:7 <hr/> <b>O</b> <b>objective</b> 32:11 <b>objectiveness</b> 66:6 <b>observe</b> 63:10	<b>obviously</b> 53:2 <b>occupants</b> 70:9 <b>occurs</b> 58:2 <b>offer</b> 49:15 <b>office</b> 4:9,10 23:18 32:18,19 <b>officials</b> 30:10 <b>Oh</b> 59:17 <b>okay</b> 18:25 19:2 30:3,7,8 33:2,5 50:4 63:25 79:15 <b>old</b> 21:19 27:4 40:23 43:16 55:23 <b>older</b> 8:11,12 21:17 36:11 47:6 <b>once</b> 20:16 27:12 <b>ones</b> 21:18 43:17 55:23 <b>ongoing</b> 11:18 15:16 16:24 17:4 18:11,11,21 59:20 77:15 <b>open</b> 25:8,9,12 27:18 30:9 31:18 31:18 32:2,22 50:17 51:5 52:22 53:4 58:18 62:21 62:21 66:12 67:4 70:4 78:19 80:5 <b>opened</b> 4:2 53:10 77:8 <b>opening</b> 38:21 39:14 63:21 <b>operate</b> 52:18 53:12 <b>operates</b> 51:3 <b>operating</b> 66:13 67:6 <b>operation</b> 59:12 <b>opinion</b> 64:9 <b>opportunity</b> 66:3 <b>option</b> 27:23 <b>options</b> 22:25 <b>order</b> 10:11 31:11 <b>ordered</b> 69:20 <b>organic</b> 48:13 <b>original</b> 68:15	<b>originally</b> 11:22 <b>ORLANDO</b> 38:2 40:15 42:2,19 44:16 79:2 <b>outcome</b> 82:17 <b>outline</b> 9:9 <b>outset</b> 30:5 <b>outside</b> 13:2 26:19 53:3 65:7,13,18 65:22 67:2,19 70:15 77:8 <b>overall</b> 25:13 <b>overnight</b> 50:12 <b>oversight</b> 59:14 <b>oversimplifies</b> 64:11 <b>o'clock</b> 50:14,15 <hr/> <b>P</b> <b>P</b> 2:14 <b>paid</b> 45:14 <b>pamphlet</b> 48:20 <b>parent</b> 38:2 <b>parents</b> 4:13 32:3 64:25 77:15 <b>parochial</b> 49:7 <b>part</b> 10:12,17 15:22 18:2,16 34:8 37:4 39:10 41:4 44:9 44:24 45:4 46:10 58:6 59:19 <b>particles</b> 80:6 <b>parties</b> 22:7 82:14 <b>parts</b> 68:10 <b>party</b> 19:10 <b>pass</b> 54:23 <b>passed</b> 20:2 <b>PAT</b> 3:17 <b>patch</b> 11:11 12:7 12:19 <b>patience</b> 57:4 81:14 <b>Patty</b> 40:16 <b>PCB</b> 3:4 11:11,14 11:18,25 15:6,15 16:4,12 17:20,20 22:25 31:7 37:4 39:20 61:25 63:3
---	---	--	---	--

63:11,13 64:8 65:6,8,19,23,24 66:8,14,16 67:11 67:12,13,20,23 68:6,11,14,25 69:5,11,22 70:2,5 70:17,20 71:2,13 71:16,20 72:22,23 73:11,15,17,22,24 74:4,10,11,21,23 75:2,7,8,16,20 76:2,8,14,18 <b>PCBs</b> 1:10 6:3,14 6:14 7:2,4,7,9,15 8:4,13,20 9:15,21 14:21 21:20,23 22:16 23:8,10,13 23:15,16,21,24 24:8,14 25:2,19 26:2,25 27:6,11 27:14 28:12,16 29:6,10 33:7 35:15 36:7,11 37:22 38:18 40:25 41:8,11 42:21 43:13,21 44:3,21 46:19,22 47:2 48:9 49:4 58:11 62:6 65:14,25 66:25 67:9 68:8 68:15,18,19,21 69:14,17 70:12,13 70:13,18 73:7 74:17,18 75:2,5 75:13,16,25,25 77:22 <b>PCB-ridden</b> 30:19 <b>peer</b> 19:6,7,8,21,21 19:23,24 20:3,4 20:11,16,19,22 21:4,6,11 22:18 22:20,23 23:5 24:2,13,22 26:6 26:13,21 27:7,21 32:2 60:20,22 61:3,5,8,17 <b>people</b> 23:20 46:8	47:10 53:3,7,24 59:4,8 <b>percent</b> 71:10,15 71:19,22 72:7 75:23 <b>percentage</b> 71:12 <b>perfect</b> 80:17 <b>perform</b> 8:8 22:9 62:23 <b>performed</b> 9:8 68:22 69:7 77:6 <b>performing</b> 9:14 <b>performs</b> 22:12 <b>period</b> 27:17 36:5 36:13,14,20,20 38:8 52:12 65:16 <b>periodic</b> 62:8 <b>periods</b> 67:22 <b>person</b> 51:18 64:2 <b>perspective</b> 71:6 <b>perspectives</b> 20:21 <b>pertains</b> 46:25 <b>pervasive</b> 63:3 69:13 71:2 75:4 76:7 <b>Petridies</b> 57:17 <b>ph</b> 30:22 57:8 <b>phase</b> 21:10 <b>phones</b> 5:18 <b>physical</b> 23:6 <b>Ph.D</b> 3:3 <b>pick</b> 22:16 <b>picture</b> 35:2 <b>pieces</b> 27:5 <b>pilot</b> 8:10,15,25 9:7 10:13 16:2 18:14 19:2 21:10 23:4 29:2 31:16 33:22 34:3,6,7 36:2,3 40:6 44:25 45:13 46:18 49:25 57:12 62:3 64:6,8 65:5 65:10 66:4 67:16 68:11 69:2 70:3 70:19 71:8 72:14 73:2 75:3,6 76:5 <b>pin</b> 28:14	<b>piolet</b> 11:21 <b>place</b> 17:10 60:2 77:20 78:13 <b>placed</b> 31:17 <b>plan</b> 6:2 18:17 <b>plastic</b> 23:6 <b>please</b> 73:3,12 74:3 <b>plural</b> 4:13,14 <b>point</b> 8:21 16:13 29:22 30:8 32:21 34:5 49:9 59:15 73:20 <b>points</b> 28:24 <b>poisoning</b> 65:21 <b>POLYCHLORI...</b> 1:10 <b>positive</b> 69:3,24 <b>possibility</b> 66:5 <b>possible</b> 5:6 55:5 66:7 69:5 76:6 80:13 <b>possibly</b> 21:22 24:24 76:7 <b>post</b> 13:4,5,7,9,14 13:20 14:4 67:7 80:2 <b>potential</b> 11:19 35:24 76:10,13 <b>potentially</b> 7:5 24:6 <b>pounds</b> 9:19 <b>practices</b> 17:8 25:18 27:4 42:13 <b>pre</b> 13:3,5,7,9,14 13:20 14:3 <b>precautions</b> 17:22 <b>precisely</b> 75:8 <b>predominantly</b> 35:16 <b>preferred</b> 1:4 8:18 9:11 10:22 16:20 27:22,24 29:17 62:7 <b>prepared</b> 8:15 20:20 <b>present</b> 1:11 3:11 23:11 46:23 66:7 70:12 78:13	<b>presentation</b> 5:12 5:16,23 9:9 25:19 35:14 41:5 64:9 <b>PRESENTER</b> 3:1 <b>pretty</b> 16:10 <b>prevent</b> 23:7 <b>preventing</b> 41:10 <b>Pre-K</b> 71:23 <b>pre-remedial</b> 66:14 67:3 69:25 <b>pre-remediation</b> 77:25 <b>primarily</b> 58:17 <b>primary</b> 23:20 72:6 <b>prior</b> 37:8 63:8 66:20,23 74:21 <b>prioritizing</b> 24:3,4 24:17 <b>priority</b> 57:19 <b>private</b> 20:6 <b>proactively</b> 24:14 26:22 27:9 <b>probably</b> 27:3 54:12 63:15 <b>problem</b> 11:2,19 38:6 40:5 77:6 79:24 <b>procedures</b> 31:10 78:8 <b>PROCEEDING</b> 4:2 <b>proceedings</b> 2:14 82:12 <b>process</b> 10:18 16:18 <b>produce</b> 69:2 <b>product</b> 44:20 <b>production</b> 9:16 <b>products</b> 9:22 <b>program</b> 15:23 16:24 36:2,3 44:25 45:14 48:19 59:9 61:25 63:13 73:15 75:3 <b>progress</b> 18:14 <b>prohibited</b> 75:14 <b>project</b> 17:15 18:3	39:24 41:16 43:19 44:10 58:2 66:16 79:15 <b>projects</b> 43:10 44:14 <b>proper</b> 17:22 22:6 39:18 44:2 <b>properly</b> 58:10 <b>properties</b> 6:19,20 6:21 9:24 <b>proposed</b> 8:17,19 62:7 <b>protected</b> 32:12 <b>PROTECTION</b> 1:2 3:5 <b>protective</b> 67:14 <b>protocol</b> 16:25 17:3 18:9 22:2,3 55:13 58:24 59:21,24 60:10 62:15,17 63:2,20 77:7 <b>protocols</b> 17:12 21:13 55:13 59:11 60:20,21,24 <b>prove</b> 38:12 79:16 <b>provide</b> 4:4 5:10 52:6 64:4,16 73:3 74:3 81:9 <b>provided</b> 6:10 7:16 7:17 20:9,10,12 20:14,24 70:16 73:12 74:3 <b>provides</b> 22:6 <b>providing</b> 6:5 <b>PS</b> 71:12 <b>public</b> 1:3 2:16 3:1 4:1 5:1 6:1 7:1 8:1 9:1 10:1 11:1 12:1 13:1 14:1 15:1 16:1 17:1 18:1 19:1,16 20:1 21:1 22:1 23:1 24:1 25:1 26:1 27:1,17 28:1 29:1 30:1 31:1 32:1 33:1,10,12 34:1 35:1,4 36:1 37:1
---	--	--	--	---

38:1 39:1 40:1 41:1 42:1 43:1,15 44:1 45:1 46:1 47:1 48:1 49:1,6 50:1 51:1 52:1 53:1 54:1 55:1 56:1 57:1 58:1 59:1 60:1 61:1 62:1,16 63:1 64:1 65:1,2 66:1 67:1 68:1 69:1,19 70:1 71:1 72:1,12 73:1 74:1 75:1 76:1,9 76:21 77:1 78:1 79:1 80:1 81:1 82:1,8 <b>published</b> 15:2 <b>pull</b> 61:10 <b>pulling</b> 79:11 <b>pump</b> 51:12 <b>push</b> 39:16 <b>put</b> 11:9 37:9 49:16 71:6 <b>p.m</b> 4:2 81:17 <b>P.S</b> 38:4,14 39:22 57:11 63:4,4 65:10 66:15,17,19 66:22 67:8 68:3,3 70:23,23 71:15,19 71:22 72:6,7,20 72:21,25 73:8 77:16,23	<b>quick</b> 45:12 62:4 <b>quickly</b> 28:12 64:4 <b>quote</b> 62:19 <hr/> <b>R</b> <b>R</b> 2:14,14 <b>raising</b> 47:19 <b>ranging</b> 48:11 <b>rate</b> 51:24 <b>reached</b> 46:20 <b>read</b> 18:18 79:22 79:22 <b>reader</b> 64:19 <b>readily</b> 63:22 <b>reading</b> 80:9,13 <b>real</b> 31:16 <b>realistic</b> 34:25 <b>realize</b> 23:12 25:6 42:15 <b>really</b> 6:4 14:17 15:5 26:14 27:8 28:14 29:14 33:15 33:21,23 34:20 39:8 49:3 53:14 55:20 71:9 79:7 80:23,24 <b>reason</b> 5:24 25:21 27:12 43:21 56:10 <b>reasonable</b> 62:11 <b>reasons</b> 44:8 53:8 <b>recap</b> 29:15 <b>receive</b> 6:2 58:13 <b>received</b> 57:8 <b>recognize</b> 71:7 <b>recollection</b> 68:9 <b>recommend</b> 78:18 <b>recommendation</b> 24:10 <b>recommendations</b> 26:15 <b>recommended</b> 23:5 26:15,17 27:25 28:4 <b>record</b> 82:11 <b>recorded</b> 73:25 <b>recycle</b> 58:22 <b>reduce</b> 23:10 24:15	26:24 27:10 42:5 <b>reduced</b> 38:8 <b>reducing</b> 24:25 <b>references</b> 64:13 <b>referring</b> 54:12 64:19 <b>refine</b> 28:14 <b>regard</b> 47:3 <b>regarding</b> 74:24 <b>REGION</b> 3:6 <b>Regional</b> 61:24 <b>regular</b> 6:7 59:7 <b>regulated</b> 17:21 75:24 <b>regulation</b> 75:10 <b>regulatory</b> 13:16 <b>reiterate</b> 48:7 <b>related</b> 82:14 <b>relative</b> 10:6 68:22 <b>relatively</b> 10:5,8 26:3 <b>released</b> 21:23 56:24 <b>releasing</b> 14:22 <b>rely</b> 31:24 33:17 <b>remaining</b> 73:21 <b>remains</b> 31:6 <b>remedial</b> 11:6 12:5 12:17,18 13:4 14:7 62:11 68:13 72:3,6 73:8 <b>remediation</b> 13:5 65:24 66:20,24 67:7 78:3 <b>remedy</b> 1:4 8:18 9:12 10:22 16:20 27:23,25 29:18 62:8 <b>remember</b> 28:25 38:3 <b>remind</b> 40:17 41:24 <b>remnants</b> 80:6 <b>removal</b> 11:10,12 12:11,20 16:3,24 17:25 31:5 43:24 55:14 58:25 59:21 65:24 66:16 68:5	68:12 76:13 <b>remove</b> 12:8 17:23 30:18 40:25 41:13 55:25 58:9 <b>removed</b> 12:13 14:9 16:7,8 17:3 18:8 29:11 36:16 38:16 44:12 57:13 60:3,13 70:14 72:2,5 <b>removing</b> 11:24 29:9 31:3 37:21 41:21 <b>render</b> 64:14 <b>renovated</b> 6:25 <b>renovation</b> 35:23 78:15 <b>reoccupancy</b> 21:13 <b>reoccupied</b> 60:16 <b>repair</b> 11:11 12:8 12:20 <b>replace</b> 12:8 <b>replaced</b> 25:12 43:16 46:3 47:7 56:2 57:18 66:18 72:3 73:10 74:14 74:20 <b>replacement</b> 11:10 11:24 12:9 17:15 17:16 40:7 43:4 43:10,19 44:10,14 69:22 73:7,18,22 77:12,15,17,24 <b>replacements</b> 16:4 47:4 68:5 78:12 <b>replacing</b> 54:7 <b>report</b> 8:16,16 20:19,20 21:6,7 24:9 31:25 64:5,7 67:18 <b>reported</b> 1:23 73:14,17 <b>Reporter</b> 82:7 <b>reports</b> 64:20 <b>represent</b> 51:16 <b>representative</b> 4:12 34:4 37:17 50:24	<b>representatives</b> 30:11 32:16 63:15 <b>require</b> 54:17 76:12 <b>required</b> 8:8 62:13 <b>requirements</b> 75:17 78:2,5 <b>requires</b> 54:18 62:8 <b>research</b> 15:18 23:18 28:6,13,22 34:7 45:4 <b>respond</b> 17:5 22:2 43:2 47:8 49:12 55:20 <b>response</b> 49:13 53:15 56:6 81:10 <b>responses</b> 20:18 26:18 61:9,18 <b>responsiveness</b> 5:11 81:7 <b>rest</b> 40:9 <b>result</b> 7:24 13:13 30:21 67:16 69:24 <b>resulted</b> 65:19 <b>results</b> 7:16,17,19 9:11 16:3 33:17 57:11 67:10,15 69:3 76:4 79:19 <b>retest</b> 43:19 <b>retested</b> 13:12 <b>retesting</b> 38:22 <b>retired</b> 61:23,25 <b>review</b> 19:6,7,8,13 19:21,21,24 20:19 20:22 21:4 27:21 60:20,22 <b>reviewed</b> 20:20 60:20,22 <b>reviewers</b> 19:23 20:3,5,11,16 21:6 21:11 22:19,20,23 23:5 24:2,13,16 24:22 26:6,13,21 27:8 61:4,6,8,17 <b>reviews</b> 32:3 <b>revise</b> 27:22 <b>revised</b> 66:10
--	--	---	---	--

<b>re-releasing</b> 14:24 <b>RICHMOND</b> 82:5 <b>right</b> 4:6 5:20 6:9 16:23 20:25 38:15 39:2 55:9 58:5 59:19 60:23 <b>rigorous</b> 78:7 <b>risk</b> 47:15 <b>risks</b> 24:15 <b>roof</b> 37:12 52:19 <b>room</b> 51:11 60:12 60:13,15 80:7,10 <b>rooms</b> 79:21 <b>Rose</b> 32:17 <b>Roseann</b> 55:8,11 <b>Ross</b> 3:18 35:11 37:24 <b>roughly</b> 38:9 <b>routine</b> 13:23 24:11 <b>run</b> 51:20	<b>saw</b> 7:19 14:8,11,15 <b>says</b> 33:19 57:10 <b>SCA</b> 3:18 43:18 68:21 <b>schedule</b> 16:7,11 <b>school</b> 1:5 2:17 6:3 9:4 10:25 12:7 13:2 16:5 24:7,21 25:14 26:20,21,23 27:3 33:10,12 34:15,18,24 35:9 35:12,20 36:25 40:6 41:19 42:25 43:6,15 44:7 47:5 49:6,7,7 51:3 54:4 55:14,21,24 56:4 56:21 57:9,17 59:10 63:17 64:25 71:11,25 73:12,19 73:21 74:5,25 76:2,19 77:13,19 <b>schools</b> 1:11 7:10 7:13 8:11,12 10:14,14,19 11:8 12:3,14 18:14 24:3,4,6 25:7,16 29:7,8,11 30:20 31:8 33:14,15,18 33:20 34:2,3,5,23 35:5,17 36:2,4,19 37:10,10,13 38:7 39:19 40:11 42:16 48:21,24 49:24,25 50:3 51:3,4 59:22 62:16 65:10 67:12 68:4,7,20,24 69:18,23 70:3 71:8 72:14,17 73:2,5 74:2,5 75:6 75:20,23 76:6,9 <b>school's</b> 48:19 <b>SCHULZ</b> 3:15 <b>science</b> 79:15 <b>scientific</b> 31:10 66:6 79:14 <b>scientifically</b> 29:3 <b>scientists</b> 32:4	<b>second</b> 5:2 28:13 41:24 46:10,18 67:25 <b>secondary</b> 14:23 <b>section</b> 37:16 <b>see</b> 12:22 22:15 26:11 28:11 34:24 37:12 43:20 44:21 56:5 57:12 58:18 61:19 63:5,22 78:9 80:12 81:5 <b>seeing</b> 43:5 <b>seek</b> 32:7 <b>seen</b> 66:13 <b>segregation</b> 59:3 <b>selected</b> 10:15 11:4 34:4 <b>send</b> 6:6 29:19 47:19 56:18 59:5 <b>sending</b> 52:7 <b>sensible</b> 48:21 54:18 56:19 <b>separate</b> 69:16 <b>serious</b> 65:4 <b>set</b> 20:10 51:19 57:3 82:11,19 <b>setting</b> 81:2 <b>seven</b> 34:16 51:21 <b>share</b> 48:18 <b>Shorthand</b> 82:7 <b>show</b> 32:23 <b>showed</b> 35:14 68:12 <b>shown</b> 65:13 67:13 <b>shutting</b> 38:21 <b>side</b> 7:4 25:24 <b>signed</b> 8:6 <b>significance</b> 11:20 72:15 <b>significant</b> 42:16 42:17 65:8 68:19 69:17 75:4 76:10 <b>significantly</b> 26:24 27:10 31:4 70:21 <b>silent</b> 5:18 <b>similar</b> 25:4 72:20 <b>simply</b> 55:2	<b>single</b> 44:15 <b>sit</b> 57:22 <b>site</b> 20:23,25 73:15 73:17 <b>situation</b> 24:5,19 72:16 <b>situations</b> 22:2 25:3 25:5 <b>six-and-a-half</b> 51:21 <b>size</b> 11:4 <b>slide</b> 20:24 29:16 29:17 <b>slighter</b> 38:18 <b>small</b> 54:20,20 75:8 <b>smoke</b> 21:21 60:8 <b>soil</b> 13:3 18:5,6 26:20,23 27:2,6,7 27:10 <b>solution</b> 40:23 42:11 <b>solutions</b> 79:12 <b>solve</b> 79:24 <b>somebody</b> 19:9 <b>son</b> 34:18 <b>soon</b> 70:18 <b>sorry</b> 45:10 59:17 <b>sort</b> 4:18 11:4 16:21 77:3 <b>sound</b> 4:20 <b>sounds</b> 46:13 <b>source</b> 28:18,19 29:10,12,13 38:13 68:19,20,22 69:17 <b>sources</b> 14:21,23 65:25 69:6 <b>spaces</b> 65:15 67:20 71:8,11 <b>speak</b> 50:5,18 55:12,18 <b>SPEAKER</b> 4:24 33:5 34:13 36:8 45:12,16,21 49:20 50:4 53:13 57:7 58:3 60:19,23 61:2 <b>speaking</b> 33:6	<b>special</b> 25:16 71:24 <b>specifically</b> 47:2 67:18 <b>specifics</b> 50:6 <b>split</b> 29:16 <b>spread</b> 54:20 <b>spring</b> 53:6 <b>ss</b> 82:4 <b>staff</b> 32:13 55:19 64:25 76:11 <b>stages</b> 36:22 <b>stand</b> 51:13 55:9 <b>standards</b> 38:19 <b>start</b> 5:23 6:13 21:4 25:18 28:23 60:8 <b>started</b> 5:14 11:16 29:20 <b>state</b> 2:16 64:12 82:3,8 <b>statement</b> 82:10 <b>statements</b> 32:20 64:15,22 <b>Staten</b> 1:6 2:18 56:14 <b>States</b> 1:2 3:5 9:18 <b>stenographer</b> 6:6 <b>step</b> 39:9 64:3 <b>steps</b> 19:4 27:16 54:18 56:19 60:14 <b>straightforward</b> 40:23 <b>strategy</b> 66:11 <b>strength</b> 68:22 <b>stretch</b> 78:21 <b>Stringer's</b> 4:9 32:18 <b>strips</b> 23:7 <b>strive</b> 32:10 <b>structural</b> 44:8 <b>student</b> 45:25 <b>students</b> 32:9 76:11 77:21 78:13 <b>studied</b> 11:7 <b>studies</b> 18:19 68:12 69:7 79:14 <b>study</b> 8:9,9,10,15 8:25 9:8 10:14
--	---	--	--	--

11:22 12:16,18 15:23 16:2 18:22 19:2 21:10 23:4 29:2 33:13,16,22 33:25 34:6,8 46:19 47:21 49:25 62:3 64:6,8 65:5 66:4 67:16 69:2 70:19 <b>studying</b> 39:11 <b>Substances</b> 46:22 75:15 <b>substantial</b> 70:25 74:10 <b>substrate</b> 68:17 <b>successfully</b> 31:2 <b>sufficient</b> 67:19 70:14 78:10 <b>suggest</b> 22:24 67:15 78:11 <b>suggested</b> 28:5 34:7 76:6,23 <b>Sulfuri</b> 57:8 <b>summaries</b> 64:17 <b>summarize</b> 64:17 <b>summary</b> 5:11 21:6 49:13 64:5,7,21 67:17 81:7 <b>summer</b> 11:17 72:4 <b>supplemental</b> 72:3 78:6 <b>supportable</b> 64:23 <b>supported</b> 64:13 67:9 <b>supposed</b> 40:2 53:21,22 <b>sure</b> 4:22 5:3,3 19:11 32:10 34:21 39:17 <b>surface</b> 13:17 22:14 <b>surrounding</b> 26:20 68:16 <b>survey</b> 31:15 <b>SUSAN</b> 3:15 <b>system</b> 6:3 24:7 33:10,12 47:11 52:17,24 80:17	81:15 <b>systems</b> 37:2,5 51:4 <hr/> <b>T</b> <b>T</b> 2:14,14 <b>table</b> 22:15 <b>take</b> 5:5,25 21:12 22:13 25:23 30:6 39:3 51:7 56:3 64:3 76:17 78:12 <b>taken</b> 2:15 49:24 64:18 73:6,12,25 76:12 <b>takes</b> 40:25 <b>talk</b> 9:7,10 15:16 19:20 23:2 24:20 <b>talked</b> 10:19 59:20 <b>talking</b> 45:19 46:24 <b>tallies</b> 73:25 74:4 <b>tally</b> 73:3,11 <b>tape</b> 23:6 <b>target</b> 16:14 <b>task</b> 61:3 <b>tasked</b> 21:11 22:18 22:24 24:2 26:21 <b>taxpayers</b> 79:8 <b>teacher</b> 33:6,8 <b>teachers</b> 31:22 32:9 33:25 51:11 64:25 <b>teaching</b> 79:10 <b>team</b> 53:23 54:4,17 <b>teams</b> 55:3 <b>technical</b> 19:13 <b>tell</b> 41:15 57:21 <b>ten</b> 33:9 38:7 <b>tendency</b> 68:17 <b>term</b> 25:16 <b>terms</b> 21:5 <b>test</b> 28:8 33:20 44:17,19,20 46:11 68:2 <b>tested</b> 18:7 43:8 65:15 66:19 67:20 68:25 70:22 <b>testing</b> 22:10,11 31:15 34:9 37:20 40:11 42:20 45:2	70:2 71:7 77:11 77:25 <b>thank</b> 4:10,14 5:20 5:22 9:2 18:25 29:25 32:14,15 37:24 45:7,21 49:14 53:13 55:6 56:9 78:20,22 81:3,9,13,14,16 <b>thankful</b> 80:22 <b>Thanks</b> 49:19 69:18 <b>thin</b> 23:22 <b>thing</b> 23:12 25:6 29:21 42:7,8,14 42:15 48:17 49:9 59:13 <b>things</b> 7:3 15:21 37:22 49:4 56:11 <b>think</b> 6:11 16:22 19:7 34:17 35:13 38:10,14 39:12 40:2,19 41:22 49:21 53:17 54:5 57:6 60:16 61:13 72:11 73:19 79:10 79:19,25 80:20 <b>thinking</b> 49:5 61:6 <b>third</b> 42:18 80:2 <b>thorough</b> 35:8 <b>thought</b> 54:11 <b>three</b> 20:4 24:16,22 65:9 70:2 72:14 73:2,5 75:5 76:5 <b>time</b> 17:2 31:5 32:14 35:21,22,23 36:5,13,14,20,21 37:8 38:8,24 50:12 51:22 52:11 55:3 58:15 81:3 <b>times</b> 52:17 60:8 <b>today</b> 29:20 <b>tonight</b> 5:7,9,24,25 6:5 46:25 49:10 81:12 <b>top</b> 29:16 61:6 <b>total</b> 20:4 53:15	<b>touching</b> 23:22 <b>toxic</b> 30:18 46:21 75:15 <b>toxicologist</b> 47:17 53:17 <b>toxins</b> 46:12,14,16 <b>trained</b> 56:12 59:4 <b>training</b> 56:7 <b>transfer</b> 6:21 <b>TRC</b> 3:14 8:23,23 9:6 <b>treating</b> 23:8,9 <b>tried</b> 37:16 51:9 <b>tripod</b> 51:13,14 <b>true</b> 82:11 <b>try</b> 37:22 50:23 51:15 54:19 55:9 <b>trying</b> 28:11,11 79:16 <b>tube</b> 51:14 <b>tubes</b> 55:25 <b>turn</b> 5:17,21 18:23 <b>turns</b> 11:19 <b>twice</b> 18:13 <b>two</b> 20:5 28:7 38:9 43:21,24 65:4 68:24 <b>two-and-a-half</b> 61:15 <b>type</b> 56:8 62:25 <b>typical</b> 11:13 34:4 <b>typically</b> 53:4 <b>T12</b> 62:9,15 73:9 <hr/> <b>U</b> <b>UFT</b> 4:12 55:12 <b>ultimate</b> 10:16 <b>ultimately</b> 12:13 15:17 16:19 42:10 <b>unacceptable</b> 65:8 70:5 <b>unaware</b> 53:18 <b>underlined</b> 62:20 62:22 <b>understand</b> 31:25 72:15 <b>understanding</b>	29:6 69:9 81:15 <b>undertake</b> 62:12 <b>unexpected</b> 70:25 <b>unexpectedly</b> 75:3 <b>unit</b> 15:9 <b>United</b> 1:2 3:5 9:18 <b>units</b> 66:13 67:6 <b>university</b> 20:8 <b>unnecessary</b> 67:11 <b>updated</b> 73:16 <b>urges</b> 31:23 <b>use</b> 11:14 37:19 74:24 75:11,13 <b>useful</b> 9:25 <b>usefulness</b> 15:10 <b>useless</b> 65:22 <b>utilized</b> 31:10 <hr/> <b>V</b> <b>valid</b> 29:4 <b>valuable</b> 6:19 <b>variables</b> 79:18,18 <b>varied</b> 26:18 <b>various</b> 12:5 <b>vary</b> 52:14 <b>vastly</b> 35:5 <b>ventilate</b> 22:8 37:10 <b>ventilated</b> 60:14 <b>ventilating</b> 39:13 <b>ventilation</b> 24:21 24:23 25:13 31:19 37:2 39:18 42:2,3 42:5,6,9,16 46:13 48:7 52:24 53:11 69:6 70:15 80:4 80:11,17 <b>versus</b> 40:21 <b>view</b> 69:12 <b>vintage</b> 36:24 <b>violation</b> 75:16 <b>violations</b> 74:24 76:15,18 <b>visual</b> 61:7 62:5,9 62:25 63:12 <b>voice</b> 33:6 <b>volatile</b> 48:13
---	--	---	---	--

<b>volume</b> 52:2	25:9,11 31:18,19	28:4,5 30:20	<b>11</b> 62:13	<b>238</b> 16:13,17 73:20
<b>volumes</b> 65:13	39:15,23 40:3,8	36:17 43:12,14	<b>1100</b> 14:4 49:22,23	<b>24</b> 64:7
<b>W</b>	42:20 43:15,24	62:14 63:14 64:5	<b>11928</b> 1:24	<b>25</b> 36:20
<b>walk</b> 7:12 33:3	44:13,14 50:17	64:8 69:19 73:15	<b>12</b> 50:14	<b>25,000</b> 41:17
<b>want</b> 4:22 10:23	51:5 52:22 53:4,5	75:19 76:9 79:5	<b>145</b> 75:20	<b>2890</b> 3:7
33:21 34:11 35:25	53:10 66:12 67:4	82:3,9	<b>15</b> 71:10	<b>3</b>
43:22 47:13 49:16	70:4 77:8,14	<b>Young</b> 45:24,25	<b>173</b> 16:18	<b>3</b> 38:14 39:22 50:15
50:20 64:3 76:20	78:19 80:5	53:14	<b>178</b> 12:7	57:11
79:24 81:13	<b>winter</b> 50:25 53:5	<b>Z</b>	<b>178X</b> 65:11 71:22	<b>3R</b> 12:10 66:17,22
<b>wanted</b> 12:18 37:12	80:3	<b>zone</b> 51:15,17	<b>183Q</b> 12:9 66:15,20	67:8 72:6,7,20,25
46:2	<b>wipe</b> 12:25 13:9	<b>0</b>	73:9 77:23	<b>30</b> 27:18 61:23
<b>warm</b> 51:6	18:17 22:12,14,21	<b>06.09.14</b> 4:1 5:1 6:1	<b>1925</b> 34:17,23	<b>300</b> 70:8
<b>warmer</b> 52:15	44:23	7:1 8:1 9:1 10:1	<b>1930s</b> 6:16	<b>309</b> 63:4 70:23
<b>wasn't</b> 41:19 71:25	<b>witness</b> 82:18	11:1 12:1 13:1	<b>1950</b> 35:18 36:6,14	71:15 72:21
<b>way</b> 23:20 27:13	<b>wonder</b> 33:15	14:1 15:1 16:1	37:18	<b>309K</b> 12:9 65:11
31:14,21 34:21	57:19	17:1 18:1 19:1	<b>1950s</b> 6:25 36:23	68:3
42:17 44:2 49:18	<b>Woodbridge</b> 3:7	20:1 21:1 22:1	<b>1970</b> 36:24	<b>31</b> 16:9
52:17 72:21 82:16	<b>wooden</b> 43:17	23:1 24:1 25:1	<b>1970s</b> 7:2,8	<b>4</b>
<b>ways</b> 37:11 41:10	<b>work</b> 9:3,5 10:18	26:1 27:1 28:1	<b>1978</b> 10:4 35:19	<b>40</b> 21:18 26:2
<b>web</b> 20:23,25 73:15	12:13 16:15 19:14	29:1 30:1 31:1	36:6,7,11,14	<b>43.2</b> 71:22
73:16	20:17 21:9 28:25	32:1 33:1 34:1	37:18	<b>5</b>
<b>week</b> 19:18	29:3,4 33:8 43:11	35:1 36:1 37:1	<b>1979</b> 75:10 76:8	<b>50</b> 21:18
<b>went</b> 13:12	46:25 79:4,12	38:1 39:1 40:1	<b>199</b> 72:21 77:16	<b>50s</b> 9:23
<b>weren't</b> 26:14 36:7	80:22	41:1 42:1 43:1	<b>199M</b> 12:8 63:4	<b>50,000</b> 70:6
<b>we'll</b> 5:13 15:16	<b>worked</b> 34:15	44:1 45:1 46:1	65:11 68:4 70:23	<b>53</b> 38:4
49:17 55:22 81:5	<b>working</b> 18:20 45:3	47:1 48:1 49:1	71:19	<b>541</b> 73:20
<b>we're</b> 5:25 9:6,8,13	<b>wouldn't</b> 33:2	50:1 51:1 52:1	<b>2</b>	<b>6</b>
10:20 11:14 18:12	<b>wrap</b> 81:12	53:1 54:1 55:1	<b>2</b> 3:6	<b>6:35</b> 4:2
19:17 30:6 38:6	<b>wrapping</b> 28:23	56:1 57:1 58:1	<b>20s</b> 9:20	<b>60s</b> 36:23
39:11,11 45:3,19	<b>writing</b> 19:9	59:1 60:1 61:1	<b>200,000</b> 68:10	<b>62</b> 71:15
46:24 79:16,20,21	<b>wrong</b> 68:9	62:1 63:1 64:1	<b>2008</b> 34:20 68:6	<b>65</b> 43:15
<b>we've</b> 10:18,19	<b>Y</b>	65:1 66:1 67:1	77:13	<b>68.6</b> 71:19
38:5 39:13 44:23	<b>yeah</b> 58:5 59:17	68:1 69:1 70:1	<b>2009</b> 10:5 34:20	<b>7</b>
52:7 61:18,18	<b>year</b> 18:13 26:5	71:1 72:1 73:1	77:14	<b>7:45</b> 50:9
<b>whereof</b> 82:18	36:20 38:8,9	74:1 75:1 76:1	<b>2010</b> 11:16,17 62:2	<b>70s</b> 6:17 9:20
<b>wholesale</b> 59:9	44:15	77:1 78:1 79:1	70:20 75:2	<b>78</b> 75:23
<b>widely</b> 6:22	<b>years</b> 7:11 8:7	80:1 81:1 82:1	<b>2011</b> 11:23 62:14	<b>8</b>
<b>widespread</b> 9:16	21:19 26:2 33:9	<b>08837</b> 3:8	66:15 72:4 75:18	<b>8:15</b> 81:17
<b>window</b> 11:12 12:9	34:16 38:3,4	<b>1</b>	<b>2012</b> 15:2,2 38:15	<b>9</b>
17:15 18:4 23:23	43:15 61:16,24	<b>1,700</b> 33:14,18	<b>2013</b> 64:7	<b>9</b> 1:12
25:25 40:10 43:4	70:10 79:3	<b>1.4</b> 9:20	<b>2014</b> 1:12 61:15	<b>90</b> 72:7
43:10,18,25 44:10	<b>York</b> 1:6 2:17,18	<b>10</b> 3:7	82:20	
66:15 68:2,4,23	7:10,18,24 8:5,6	<b>100</b> 70:8	<b>2016</b> 16:9 38:9	
73:7 77:11,17,24	8:15,24 9:4,17	<b>10306</b> 2:19	59:23 69:21	
80:2	11:3 19:5,13		<b>217</b> 73:19 74:2,7,9	
<b>windows</b> 10:3 25:8	20:14 24:7 27:20		<b>23rd</b> 82:19	

94.8 72:9